Wine and Regional Tourism:
Cluster Complementarity and Regional Development

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Abstract

This thesis investigates the impact of clustering on the development and operation of wine and tourism industries in Victoria, Australia. Specifically, the research analyses the structure and competitive strength of industry players, and highlights the importance of geographic co-location on their behaviour. In essence, this study examines micro-clusters in these regional industries to identify overlap and complementarity between them.

The research focuses on three case studies based around geographic locations in Central and Western Victoria – Ballarat, Northern Grampians and Bendigo regions. The primary aim of the study is to gain an understanding of the scope of wine and tourism micro-clusters and how they interact. Through a process of identifying and understanding the characteristics shared by wine and tourism enterprises within their rural/regional locations – particularly markets, inputs and structure – it is possible to determine the degree of overlap between them. The subsequent picture that emerges is one of a new and distinctive industry – wine-tourism.

Generally speaking, this study develops and applies a framework that demonstrates the relevance of cluster theory as a regional development tool for scenarios that fucus on co-located clusters at a micro level, as opposed to the majority of research reported that focuses on the macro level. Specifically, the findings of this research can be represented in a model of complementarity for regional wine and tourism micro-clusters. Furthermore, it is expected that these findings will contribute to a strategy for strengthening wine-tourism within a region. This study has added a degree of confidence in the application of cluster theory to rural and regional micro-cluster analysis, and has identified that complementary between clusters is important and, to some extent, is influenced by industry type which may in turn be moderated by location.

Statement of Authorship

Except where explicit reference is made in the text of the thesis, this thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which the author has qualified for or been awarded another degree or diploma. No other person's work has been relied upon or used without due acknowledgment in the main text and bibliography of the thesis.

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Applicant	Supervisor
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Great Western wine-growers are like a big family united by their common interest, their mutual esteem, and their genuine friendship. There is no professional rivalry among these intelligent gentlemen, who only wish to live at peace, and who know that unity is strength. If one succeeds they all share his success. For it is a success for Great Western. There is no jealousy; they act more like associates than rivals. If there are any difficulties to overcome they have the sense and the honesty to act together instead of dividing their efforts. Frankness is written on their faces, and they are so expansive and cheerful it is as if they were always on holiday. It is because they drink their wine, these growers, and leave to others the beer that dulls the spirits and the whisky that paralyses and kills (Comettant, 1980, p. 213)

Chapter One Introduction

1.1 Introduction

This thesis examines the impact of clustering on the development and operation of wine and tourism industries in Victoria, Australia. Specifically, the research analyses the structure and competitive strength of industry players, and examines the importance of geographic co-location on their behaviour and the development of new and distinctive industries. The research involves three geographic locations in Western and Central Victoria that are typical of many regions where wine and tourism co-exist. The study is multi-disciplinary and contributes to the fields of regional development, tourism and industrial structure.

The wine and tourism industries within Western and Central Victoria share a number of common attributes such as geographic co-location and economic, social and natural resource assets. In some cases, the industries compete for land, capital and skilled labour. However, they also have significant demand and supply side complementarities that create better conditions for the development and performance of both industries. This complementarity however, in terms of its nature and economic significance, varies considerably from one region to another.

In the past two decades, the Australian wine and tourism industries have grown considerably. Both industries are significant exporters and are important generators of wealth in many parts of Australia. They involve established and sometimes complex value chains, and contain a significant number of small and micro-enterprises as well as larger companies. It is well recognised that physical geography and location play a major role in the growth of these industries; and it is the interaction of economics, geography and enterprise relationships that is a focus of the research.

1.1.1 The Tourism Industry

The tourism industry in Australian covers a wide range of industry sectors including transport, hospitality, visitor services and gaming. The Tourism Satellite Account (TSA) is a means by which Australia determines the national value of this industry; for 2001-02 it reports that more than $70 billion worth of tourism goods and services were consumed (Australian Bureau of Statistics, 2004). In recent years, tourism in Australia has been impacted on by world events, international competition and changes in customer demands which have caused a downward revision of tourism forecasts for both international and domestic travel. The recent Green Paper provides an overview of the current and future directions of tourism and its sustainability within the Australian economy (Department of Industry Tourism Resources, 2003). A theme that emerges from this revised strategy is the importance of rural and regional tourism to the long term sustainability of this industry.

The tourism industry contributes 4.7% of Australia's Gross Domestic Product (GDP) and more than 70% of tourist consumption occurs in non-metropolitan Australia. The vast majority of tourism businesses (90%) are classed as small to medium businesses and approximately 40% of these are located in rural and regional Australia (Department of Industry Tourism Resources, 2003). These data illustrate that the role of rural and regional tourism has come to the forefront of Australia's long term tourism planning. The launch of the $16 million *See Australia* campaign, jointly supported by the Commonwealth, State and Territory governments, has in part targeted regional and rural tourism by drawing emphasis away from capital cities (Perry, 2001).

1.1.2 The Wine Industry

The Australian wine industry has benefited from a shift in world wine consumption patterns. As one of the *new world* wine producers, Australia has increased its share of the world market to more than 20% in 2000 (Foster & Spencer, 2002). Export sales in 2001-02 outstripped domestic sales for the first time (Australian Bureau of Agricultural and Resource Economics, 2004). As the industry continues to expand, it has become increasingly reliant on overseas markets for wine sales. Despite reduced production due to drought conditions over much of Australia,

export sales exceeded 500 million litres and domestic sales over 400 million litres (Australian Bureau of Statistics, 2003).

The wine industry is made up of wine grape growers – more than 5000 independent vineyards – and 1450 wineries located in 55 regions nationwide (Australian Trade Commission, 2003). The size of these enterprises varies; currently the top 20 companies control more than 95% of wine output with the remaining production coming from a large number of small and micro enterprises.

The international status of the industry with export sales of $2.3 billion, an increase of 20% on the previous year (Australian Bureau of Agricultural and Resource Economics, 2004), is evidence of one that is highly competitive and innovative. This thesis will argue that this factor is partly a result of the strong influence of collaboration and competition in the industry, together with the impact of local/regional effects and productivity.

1.1.3 Wine and Tourism: Co-operation and Complementarity

Both the wine and tourism industries have a strong regional and rural base and this sometimes leads to shared locations, customers, suppliers and interconnected networks. Of particular interest in this study is the complementarity of these two industries in that they may share similar markets and inputs. As indicated earlier, they also have a similar industry structure, have often been co-located and the growth of each sector may have positive impacts on the other. This *convergence* or *overlap* – terms that will be discussed in greater detail later – may have developed a hybrid *wine-tourism industry*; that is an industry which is emerging separately from the specific sectors of viticulture and wine making, and tourism and hospitality.

The development of wine-tourism has provided considerable growth opportunities for both of these industries and the rural and regional economies where they are co-located. This phenomenon has been recognised and actively exploited in Australia and other *new world* wine producing countries, such as Canada, United States, New Zealand, and more recently South Africa (Hall et al., 2000). The *old world* wine producing countries, including France, Italy and Spain, have only recently begun to recognise the significance of wine related tourism, and are

seeing it as a means to counter the increased competition on the international wine market from the *new world* producers (Getz, 1999, 2001; Hall et al., 2000).

The nature of the wine industry and its predominance in rural locations provides the tourism industry with additional and complementary regional destinations and adds significant value to regional tourism. Research has identified tourism consumers who also have an interest in wine processing and cellar door sale locations as *socially aware* or *visible achievers* (Jago, Issaverdis, & Graham, 2000; Roy Morgan, 2000). These segments have not traditionally been attracted to rural based tourism destinations. As a consequence, tourism bodies and government agencies in regions that have wine related resources have become particularly interested in understanding and accessing this new and growing market (Heaney, 2003; Tourism Victoria, 2002b).

There appear to be some aspects of the wine industry, be it the nature of the industry or where it is located, that make it particularly attractive to tourists and tourism operations. There are also particular characteristics of the tourism industry that complement the wine industry. These characteristics and complementarities may explain variations in the success of tourism and wine industry development and their impact on regional economic growth (Macionis, 1999).

1.1.4 Wine-Tourism and Regional Development

There are indications that communities in wine regions have varying success in capturing the economic and social returns from their tourism potential (Crockett, 1999; Hall & Johnson, 1999; King & Morris, 1998). In areas where there is co-location of wine and tourism industries – such as Margaret River in Western Australia, the Hunter Valley in New South Wales and the Yarra Valley near Melbourne, Victoria – wine-tourism has become a successful part of the regional economy (Crockett, 1999). However, the majority of Victorian wineries open to the public are located within ninety minutes drive from Melbourne and are in the areas where wine-tourism is well established (Jago et al., 2000). There are other wine producing areas where wine-tourism does not have such an impact. This lack of impact may be a consequence of a number of factors, including isolation from tourism markets and limited reputation or concentration of wine producers.

Hall and Johnson (1999) suggest that communities in wine regions will need to strengthen wine and tourism relationships in order to maximise the positive returns and capture the value from industry co-location. The need for this is arguably greatest in regions of lower or declining economic activity (Killion, 2001; Prosser, 2001). Achieving such outcomes requires a greater understanding of the interaction between these industries and their impact within a region's economy, particularly in the context of wine-tourism.

The impact that wine and tourism have on regional economic development in Australia has been described by many current researchers (Anderson, 2001a; Hall, 1995; Hall, Cambourne, Macionis, & Johnson, 1998; Jenkins, Hall, & Kearsley, 1997; Killion, 2001; Marceau, 1997; Marsh & Shaw, 1999, 2000; Prosser, 2001). Because wine and tourism are generally dependent on geography, it is frequently the case that wine regions overlap with tourism destinations. Consequently, the potential for complementary activity in wine-tourism provides an opportunity for strengthening the wine and tourism industries at a regional level. However, there is little consensus on how this can be achieved (Cambourne, Macionis, & Hall, 2000; Hall et al., 1998; Hall & Johnson, 1999; Macionis, 1999). The various industries – wine, tourism and wine-tourism – have attracted significant attention from investors, policy makers and governments, which have in part lead to the development of wine-tourism strategy plans (Macionis & Cambourne, 2000). They are seen to be growth industries in regional Australia and are attractive to a growing number of people as a lifestyle factor which has added to their development.

1.1.5 Industries and Clusters

Porter (1998) uses the concept of a *cluster* to map the Californian wine industry which identifies links or complementarities with the co-located tourism and food industries. Porter uses this notion of clusters to represent "…a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities" (p.199). The distinction between an industry and a cluster is both important but also complex. Some clarification of these is necessary to understand how they apply in this thesis, which is concerned with industries that are co-located and interact with each other.

The Australian Bureau of Statistics (ABS) defines an industry in terms of an Australian and New Zealand Standard Industry Classification (ANZSIC); the breadth of the industry is defined by whether that classification is three, four or five digits. Using this type of classification

system, the wine industry falls into two distinct divisions – grape growing (ANZSIC 0114) which is in Division A (agriculture, forestry and fishing) and wine making (ANZSIC 2183) which is in Division C (manufacturing). The tourism industry, on the other hand, is spread across a much wider range of divisions, including Accommodation, Cafes and Restaurants, Transport and Storage, Cultural and Recreational Services, and Personal and Other Services.

These industry classifications can illustrate the nature of a cluster, particularly where they are part of a distinct industry division or group. For example, the furniture manufacturing industry is a three digit ANZSIC. When an industry is more broadly based, or is made up of two or more different industry divisions, clusters which do not necessarily fit into the ANZSIC classification become a relevant way to describe, measure, and map groups of interrelated and co-located enterprises. Porter (1998) clearly demonstrates this situation when describing the Californian wine cluster which involves relationships between the two industry divisions of viticulture and wine making. He also shows that this cluster has some relationship with other clusters that may or may not be recognised through Standard Industry Classification (SIC) systems; for example, the tourism cluster, the food cluster and the agricultural cluster.

The complementarity of industry characteristics may lead to opportunities for individual enterprises as well as the growth of the industry and cluster. The challenge for regional communities with both wine and tourism resources is how to leverage these complementarities. The concept of clusters in the wine industry has been discussed across a number of regions in several different countries (Ammirato, Kulkarni, & Latina, 2003; Blandy, 2001; Chapman, 2000; Marceau, 1997; Marsh & Shaw, 2000; Porter, 1998). Until recently however, there has been less discussion about tourism clusters (Nordin, 2003; Rex, 1999; Rosenfeld, 1997; Smith, 1999). These discussions suggest that the tourism industry and tourism clusters are not easily defined. Furthermore, it is unclear whether there are some characteristics of certain industries and their regional imprint that make them more or less identifiable as a cluster, or of engaging in the processes associated with clustering (Benneworth & Charles, 2001).

For the purpose of this study, it is necessary that a distinction between industry and cluster is made. A cluster is defined simply by co-location and interaction of enterprises in an industry or across industries. An industry, on the other hand, is a collection of organisations and activities undertaking a particular set of functions in the value chain or across value chains, but where there is no co-location and little collaborative interaction.

1.2 Background to the Study

1.2.1 Co-located Regional Industries, Agglomerations and Clusters

Differences between industry and cluster have been identified, with clusters being linked with co-location. However, co-location and clustering are also different because a cluster goes beyond geographic agglomeration (Hoover, 1975). Clusters do represent a degree of co-location but co-location alone will not develop clusters. The complexity associated with understanding regional economic geography has evolved beyond agglomerations and co-location to combine geographic, economic and social elements (Ginsberg, 1997; Ginsberg & Morecroft, 1997; Harrison, 1991; Rosenfeld, 1997). Regional industries organise themselves beyond the notion of industry agglomeration, and indications that some co-located regional businesses generate interaction and collaboration between themselves brings a new dimension in describing these phenomena (Lowe & Miller, 2001; Pouder & St John, 1996).

Porter's (1990,1998) concept of clusters linking industry and region, and its antecedent Marshall's(1910) work on industrial districts, are sometimes seen as static equilibrium states, whereas a key question is how co-located enterprises move toward the status of a cluster. Ginsberg (1997) suggests that clusters form part of a complex system in which a group of related firms or an industry is embedded. The interpretations of clusters demonstrated in the literature suggest they go much further than economic interactions and agglomeration, and extend into the deeper social fabric of a regional industry or firm structure (Rosenfeld, 1997). The corollary of this is that "clusters occupy a more complex and integral role in the modern economy than has previously been recognised" (Porter, 1998, p. 208).

This complexity may indicate why cluster theories, models and subsequent methodologies have developed from a broad definitional base. It may also signify the continuing evolution of the phenomenon as it responds to the diversity of applications and regional economic development agendas in which cluster approaches are being applied. This has meant that understanding and identifying clusters is now a recognised research path in both developed and developing regional economies (Rosenfeld, 2002a).

1.2.2 Micro-cluster and Clustering

Cluster studies have typically focussed on large and internationally competitive agglomerations of businesses and industries (Porter, 1990). There has been much less emphasis on small and developing clusters. The literature provides limited evidence of research methods for identifying or understanding these small or *micro-clusters*; nor the process of clustering itself, particularly those in rural areas (Chapman, 2000; Rosenfeld, 1997).

Rosenfeld (1997) identifies a deficit of suitable data for cluster identification which results in an inability to identify typical forms of clustering in rural areas. He contends that a new methodological approach is required that recognises there are connections between businesses in smaller or more remote regions, and that these may take on different forms compared to those in large and established clusters. In these situations, micro-clusters may exist with a smaller critical mass than traditionally recognised and the levels of clustering activity may be less structured. The identification and description of micro-clusters requires an understanding of a broad range of geographic, economic and social interactions that are important in rural and regional situations.

Cluster models have been developed that reflect different agendas and applications. A common theme that emerges is that clusters have the potential to contribute to regional economic growth. However, cluster models that capture the processes of clustering and the complementarity of co-located clusters are less common. These latter models are most relevant when considering clusters which may not have the level of cluster dynamism or critical mass that are apparent in more developed, main stream regional clusters (Porter, 1998; Rosenfeld, 2001a). There is some evidence that co-located clusters can interact and Porter (1998) comments that "cluster development often becomes particularly vibrant at the intersection of clusters. Here, insights, skills, and technologies from different fields merge, sparking new businesses" (p.241).

Rosenfeld (1997) further highlights the importance of interaction between businesses, particularly those that are rurally based, and how they collectively relate to each other and other markets. He suggests that a typical form of rural clustering can result from "small concentrations of firms that establish a collective identity" (p.19). Rural based wine and tourism

clusters, the subject this study, provide a valuable opportunity to investigate further this aspect of clusters.

By understanding the structure of micro-clusters and the processes within them, it may be possible to identify different types of clusters and cluster processes. Adopting this type of approach allows for a broader understanding of how co-located businesses interact and the vibrancy which might result from co-located clusters. This enhanced understanding may identify elements critical to the sustainability of some regional economies.

1.2.3 A Cluster Approach in Wine and Tourism

Porter (1998) illustrates the capacity of clusters to interact or complement other co-located clusters or sectors through his description of the Californian wine cluster:

> …an extensive complement of supporting industries to both winemaking and grape growing… the cluster enjoys strong links to both the California restaurant and food preparation industries and the tourism cluster in Napa and other wine-producing regions of the state (p. 201).

In the local context, numerous accounts of successful clustering in the Australian wine industry have been reported (Anderson, 2001b; Blandy, 2001; Bond, 2000; Marceau, 1997; Marsh & Shaw., 2000; Porter, 2003). Conversely, successful tourism clusters appear less common, though they have been included in several national and regional cluster maps both in Australia and internationally (Blandy, 2001; Porter, 1998; Rex, 1999; Smith, Denton, & Crinion, 1999).

The broad base of the tourism industry and its fragmented nature (Leiper, 1995) may have an influence on tourism cluster development, particularly if identification depends on traditional cluster analysis methods which are reliant on industry data. Debbage (1990) suggests that this fragmentation also means it is difficult to make estimations of the true contribution of tourism to a community economy are.

More recently, attention has been drawn to the relationships connecting wine and tourism industries (Dowling, 1998; Dowling, 1999; Getz, 1999; Hall et al., 1998; Hall & Johnson, 1997; Macionis, 1997; Macionis & Cambourne, 2000). Despite this growing body of literature on the popular notions that the regional impacts of wine tourism are substantial, little systematic

research is available to confirm this in Australia (Jago et al., 2000). This research gap is particularly evident in the cluster literature.

The decision to utilise the concept of clusters to research the relationship between regional wine and tourism industries in this study is based on several factors. Firstly, tourism and wine regions may be viewed as clusters or agglomerations of economic, social and resource assets which support a market for tourism and wine related activities. Secondly, co-location is important for a region's wine industry for product branding, and for the tourism industry for destination marketing. Thirdly, and central to this study, wine regions often overlap with tourism regions in both a spatial and perceptual sense. For these reasons, the concept of clusters and their spatial focus and collaborative agendas, seemingly fit well with the development of wine and tourism; that is industries often reliant on location and natural advantage for establishment and growth in a region.

At first glance, tourism and wine clusters would appear to overlap in the form of wine-tourism. This factor is promoted in wine and tourism regions where the tourism industry often adopts wine as part of the tourism experience (Tourism Victoria, 1998). This opportunity is also embraced by the Australian wine industry which sees tourism as increasingly important as a means of wine industry growth (Marsh & Shaw, 2000).

The cluster approach provides the mechanism to better identify and understand the factors important to wine-tourism development, and the nature and extent of the relationships or overlap between co-located wine and tourism enterprises. It is through this approach that this study will determine if the synergies between these *clusters of activity* can be identified and utilised in the formulation of regional wine-tourism strategies.

1.2.4 The Regional Context

Industry in regional Australia has historically been based around primary industries and associated or decentralised secondary industries (Black, 2000). In this environment, a diverse range of enterprises generate differing levels of economic and social wealth. This wealth generation is due to a combination of a number of factors including scale, distance and types of enterprises which, with capital, labour, markets and suppliers, can create a critical mass that

leads to significant economic benefits. However, in some regions these factors are not as well developed and these regions are stagnant or in decline (Hugo, 2001).

Tourism and wine are not distributed evenly across regional Australia, and in some regions the factors that might contribute to the growth of these industries are not easily identified. Rosenfeld (2001a) suggests that clusters in rural areas appear less applicable simply because of the lack of critical mass and related concentrations of similar or interdependent businesses. However, industries which often have a rural base (such as wine) and service based industries (such as tourism) involve collaboration and complementarity between enterprises. This is often associated with both geographic proximity and the social structures that are present in a region (Porter, 1998; Rosenfeld, 2001a; Porter, Ketels, Miller & Bryden, 2004). These are factors sometimes overlooked as important to growth; however, they can and do play an important role in the development of clusters or centres of growth in regional settings. Hence, clusters and more specifically the processes of clustering, particularly at the micro-level, can influence regional growth. When applied to wine and tourism, they influence the capacity of these co-located industries to complement each other.

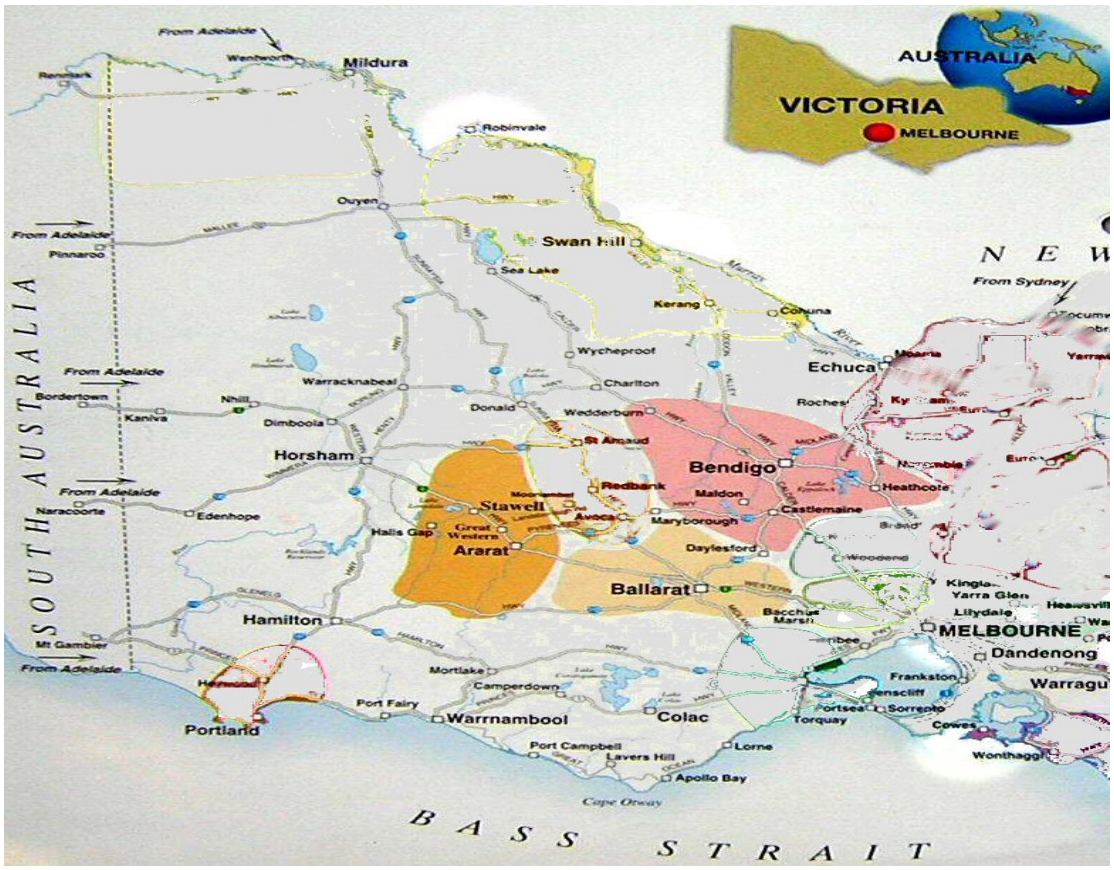
Although the focus of this study is on wine and tourism industries and wine-tourism activity in regional Victoria, it is important to recognise that the size, structure and regional economic significance of these industries varies across the region. This variation is reflected in differing levels of activity within and between these industries, and in the way wine-tourism is developing more strongly in some regions compared to others (ACIL, 2002; Macionis, 1999).

1.3 The Study Approach

This study concerns the Central and Western regions of Victoria. The location of the study area is shown in Figure 1.1. Four industry partners are involved in this study: Ballarat Tourism; the Greater City of Bendigo; Northern Grampians Shire Council; and the Victorian Wineries Tourism Council (now Tourism Victoria). All of these partners have committed resources that are critical to this study. The partners represent tourism businesses and regional municipal communities that have experienced considerable success in developing regional tourism, albeit

with varying success in developing wine-tourism activities. All share a common interest in gaining a better understanding of their tourism and wine resources, with a view to developing new avenues for strengthening the relationship between the wine industry and the broader tourism industry. It is hoped that this understanding can be developed to assist regional tourism growth. The three study areas are introduced at this point.

Figure 1.1 Locations of study areas in regional Victoria



Modified from Tourism Victoria (1998, p. 5).

The Ballarat study area: This area incorporates the Ballarat tourism (Eureka Ballarat) region managed by the Ballarat City Council, and the Ballarat wine region as designated by Tourism Victoria and the Ballarat and District Vignerons Association. The study area includes the Regional City of Ballarat, the township of Buninyong, and surrounding rural land.

Ballarat and its surrounds occupy an important place in the settlement history of Victoria, particularly through the gold discoveries of the 1800s. The economic base has changed since establishment from essentially gold mining and agriculture to now include value-added food processing and technology based industries. Service based industries, particularly tourism,

continue to become increasingly important to Ballarat's regional economy. Ballarat is also a regional centre for tertiary education where the University of Ballarat and the Australian Catholic University (Aquinas Campus) are located.

The Ballarat tourism cluster as identified in this study is bounded by the Ballarat tourism region and comprises a wide variety of tourism related businesses. Within this region, the city of Ballarat has identified more than 150 businesses involved in the tourism industry primarily identified by their membership to tourism associations. These businesses have been used to form the base of the tourism cluster within this study. Similarly the Ballarat wine cluster has been defined by the regional wine association which forms geographic boundary for this cluster. There are approximately 55 wine grape growers and wine producers within this region. These businesses provide the bases for the wine cluster in this region.

The Northern Grampians study area: This region is dominated by the Grampians mountain range and comprises part of the Northern Grampians shire, the city of Ararat and the Grampians wine growing region. The main townships are Ararat, Stawell and St Arnaud; Halls Gap, a major tourism centre; and Great Western, the main wine producing centre. The estimated population of the study region is approaching 15,000. The Northern Grampians study area is defined in part by the boundaries of the Northern Grampians tourism region and in part by the boundaries of the Grampians wine growing region.

This region has a strong gold and agricultural history and, together with its natural, cultural and historic features, continues to be an economically active part of rural Victoria. The major industries are tourism, mining, textile manufacturing and agriculture. Viticulture has been part of the landscape for over 150, years with some of the oldest vines in Victoria still being harvested in the Great Western region (Dunstan, 1994). Tertiary education and training facilities include University of Ballarat (Stawell Campus) and the Australian College of Wine (Northern Metropolitan Institute of TAFE).

The Northern Grampians tourism cluster encompasses those tourism related businesses within the Grampians geographic region and within the Northern Grampians tourism region. Within this region, the local government identifies more than 120 businesses involved in the tourism industry. These businesses have been used to form the base of the tourism cluster within this study. The wine cluster in this region is defined by the regional wine association and forms

geographic boundary of the cluster. In excess of 40 grape growers and wine producers are identified within this region. These businesses provide the bases for the wine cluster in this region.

The Bendigo study area: This area incorporates the Bendigo wine region and the Bendigo tourism region. It includes the city of Bendigo, the township of Harcourt, and surrounding rural land. Bendigo is Victoria's third largest regional city. The largest employment sectors are manufacturing, financial services and retail trade. Education, health and community services are also large regional employers. Tertiary education facilities include the Bendigo Regional Institute of TAFE, which has a focus on both tourism and wine production, and the La Trobe University (Bendigo Campus).

Similarly with Ballarat, Bendigo's development is centred on a rich gold history. The Bendigo region is characterised by a diverse range of agricultural and agribusiness pursuits, as reflected in the *New Mediterranean*, a strategy which has been developed to attract new agribusiness and expand existing agricultural enterprises in the region (Gould, 2000). The promotion of horticulture and viticulture forms a key part of this strategy.

These three study regions show certain similarities in terms of their history and regional significance, but seemingly differ in terms of how both their wine and tourism industries operate and interact. This study provides an opportunity to explore why these differences might occur. A case study methodology has been utilised, which provides an opportunity to examine the unique characteristics of the tourism and wine industry in each of the three regional study areas. Of particular interest is the extent of overlap and complementarity expressed through the development of wine-tourism, as described through a study of the concept of clusters, and the processes of clustering.

In this study, the Bendigo tourism cluster is bounded by the Bendigo tourism region and comprises a wide variety of tourism related businesses. Within this region, the local government identifies more than 200 businesses involved in the tourism industry. These businesses have been used to form the base of the tourism cluster within this study. The wine cluster in this region is defined by the regional wine association and forms geographic boundary of the cluster. In excess of 40 grape growers and wine producers are identified within this region. These businesses provide the bases for the wine cluster in this region.

1.4 The Research Questions and Aims of the Study

The primary aim of this study is to examine the influence of co-located clusters on the development and strategy of wine and tourism enterprises and their associated industries. The main research question is:

> *Does the co-location of wine and tourism enterprises lead to clustering, and through the cluster processes to improvement in the growth and performance of the wine and tourism industries?*

A number of sub-questions are also addressed:

> *Is location important in the development of wine and tourism micro-clusters?*
>
> *Is the process of clustering the same or different in the wine and tourism industries?*
>
> *When wine and tourism industries are co-located are there (intra- and inter- industry) clustering effects?*
>
> *Is regional development enhanced by encouraging cluster activity in wine and tourism industries?*

In order to explore these questions, it is also necessary to investigate a number of research areas that will help to clarify the development of clusters and how they apply in the wine and tourism industries in different locations, namely:

- The characteristics of micro-clusters
- the cluster processes that are present in co-located wine and tourism industries
- the identification and evaluation of cluster overlap and complementarity, and how these affect the competitive strength of a region or cluster
- whether government policy or assistance influence regional wine-tourism growth and the strengths of both the wine and tourism clusters.

The study involves the development of a research framework using the theory of clusters to analyse the relationships both within and between the diverse industries of tourism and wine that in many regions are co-located. The study involves interviews with key industry representatives and a survey of wine and tourism enterprises in each of the three locations.

1.5 Significance of the Study

Clusters are an increasingly important component of regional and national economic process. In the Australian context, clusters and cluster approaches to economic development have been initiated by a number of local governments (Enright & Roberts, 2001) and recently the State of Victoria has identified clusters as an approach to regional economic development (Ammirato et al., 2003). At the national level, however, there is no cluster policy. Internationally clusters have been identified in a wide range of industries including textiles, biotechnology and electronics, and have been utilised within regional and national economic development policies in both developed and developing regions.

Porter (1998) asserts there is evidence emerging that new areas of economic growth and niche industry development occur when clusters overlap. It is likely that the transfer of competencies, knowledge spill-over and cross-cluster interaction are important in this process and these are linked to relationships within and between clusters. Furthermore, Porter suggests that where clusters intersect, competencies and technologies from different fields merge, thus creating the catalyst for new enterprises to develop. An understanding of the role of cluster overlap and associated complementarity in the creation of new enterprises has not been well developed in the cluster literature to date. Moreover, the literature suggests that the implication of location and industry type on cluster processes therefore has not been tested. Consequently, this study of co-location of two different industries – wine and tourism – provides an opportunity to examine the pre-condition for overlap and complementarity of co-located clusters. In addition, the co-location of wine and tourism micro-clusters, which often do complement each other, may also overlap to form wine-tourism clusters. For these reasons, this study provides a platform to view the interaction of different types of enterprises from different industries. It also explores the implications such interaction might have on skill and knowledge transfer and new industry development, thereby expanding this area of research.

A further important part of the study concerns the application of clusters at a small scale. Small clusters in both rural and regional settings have been acknowledged, but are often overlooked in favour of larger and more economically significant clusters which attract the attention of research; for example the electronics cluster located in Silicon Valley and Route 128 (Saxenian, 1990; 1994). Rosenfeld (1997) contends that applying clusters in rural settings means that a revised approach is needed to be able to identify and analyse clusters and cluster process. He concludes that, "If the process is successful, over time the system may achieve the scale to be recognised as a 'cluster'…" (p. 17).

The research into micro-clusters should take into account the processes of clustering. These processes can be the result of active or passive interaction of participants. It is recognised that micro-clusters may lack scale but they can also provide a vehicle for the development of local competencies (Rosenfeld, 2002a). In response to the notion that clusters may not exist in a region, Rosenfeld (2002b) argues that many small clusters do exist but research methods may not be equipped to identify or isolate them from other regional activity. It is important that this study recognises that clusters can exist at many levels, and by using cluster theory as the underpinning economic approach a method of identifying and analysing micro-clusters can be developed.

In the course of identifying micro-clusters and examining clustering processes, there is an opportunity to explore if co-location plays a part in the complementarity of clusters. It may then be possible to determine if, for example, a regional wine cluster has an effect on a co-located regional tourism cluster. In addition, complementarity between co-located micro-clusters may or may not result in cluster overlap, which is beginning to be recognised as an important source of cluster vibrancy (Porter, 1998; 2003).

These are important aspects of clusters that have not been well understood to date. This study attempts to contribute to the body of research by exploring the concept of cluster overlap and complementarity between regional wine and tourism micro-clusters. The opportunity to study the interaction and relationships between these two industries, in a regional setting using a cluster approach, may in turn help identify important factors that can direct initiatives that take advantage of otherwise unnoticed opportunities. It is acknowledged that this research focuses on information which is specific to co-located wine and tourism micro-clusters. However, it may

also provide some insight to the processes that might be active in other industry micro-clusters that share regional co-location.

1.6 Issues and Research Methods

This study is based around three regional areas of co-located wine and tourism enterprises. The study approach is multidisciplinary. It is therefore important to clearly identify key terms, clarify the interpretation of their meaning as well as the research methods that have been adopted in this particular study. The definitions and associated interpretation of terms and related concepts are adopted for the specific purpose of the research and therefore not necessarily appropriate in other applications.

1.6.1 Terminology and Definitions

Within the cluster literature, there is some ambiguity in the definition of *clusters* (Bergman & Feser, 1996; Feser, 1998; Jacobs & De Man, 1996; Porter, 1998; Rosenfeld, 1997). Definitions have evolved over time and are discussed at some length in Chapter Three. Porter (1998) provides the most commonly quoted definition; however, it does not specify the particular application of clusters at a micro-scale or in rural settings. Therefore, the following definition (though less commonly used) was adopted for this study because it identifies relevant aspects of micro-clusters Rosenfeld (1997) contends that they need not be economically significant to exist for "a cluster is very simply used to represent concentrations of firms that are able to produce synergy because of their geographic proximity and interdependence, even though their scale of employment may not be pronounced or prominent" (p.4).

It is also important to make a distinction between the terms *cluster* and *clustering*. In this study, it is commonly understood that clusters are concentrations of enterprises that can be measured or be classified as clusters because they demonstrate some co-location and concentration of activity. On the other hand, clustering on the other hand involves processes and relationships; these can be tangible but are more often intangible, and not measured using standard statistically based analytical tools (Enright, 2000a; Harrison, 1991; Porter, 1990; Rosenfeld, 2001b). This

study uses clustering as a key indicator of the activity of co-located clusters and their level of cross cluster interactivity.

The term *complementarity* is interpreted differently throughout the literature, but is generally associated with an improvement/increase in the value and productivity of another output, input or factor of production. For example, in the farming context, legumes complement other crops in a rotation. In literature more relevant to this study, complementarity is interpreted as a means of facilitating activity between participants in a cluster; these complementarities can be among products, across products, through marketing, and through better alignment of activities within the cluster (Porter, 1998). In this study, complementarity represents the activity between businesses within a cluster, such as those described by Porter. It also includes the activity that occurs between co-located clusters, which adds value to businesses within each cluster and the cluster as a whole. The use of complementarity in this study encompasses a somewhat looser understanding of this term. Characteristics of clusters, and more importantly, the processes of clustering facilitate levels of complementarity where co-location, comparability and reputation are major contributing factors – how businesses interact within such setting forms the basis of the levels of complementarity.

This interpretation of complementarity is distinct from that of *overlap*. In this study, overlap refers to the common characteristics of the clusters, which might include common membership to industry organisations or undertaking the same types of activities. Porter (2003) identifies overlapping clusters as those whereby each cluster shares at least 20% commonality in its industry base with the other cluster. This can be indicated by overlapping markets or inputs, or conducting the same types of business activities and being involved in the same types of industry associations, as is the case in this study.

As indicated previously, industry definitions vary and depend on the industry base. Within the discipline of tourism a debate on the definition of a *tourism industry* has been long standing. A review of this literature is provided in Chapter Two. For the purpose of this study, the concept of *tourism* is broad and includes all those businesses and agencies that see themselves as part of the industry. This incorporates a diverse group of enterprises where industry definitions can be unclear, because many of those involved in tourism may also be involved in other industries or may be part time business or hobby activities. Leiper (1979) refers to tourism as a substantial but fragmented industry, which includes elements that operate in isolation having an impact on the industry as a whole. By contrast, the *wine industry* by contrast is more easily recognised and

defined; in this study, it represents those involved in the cultivation and harvesting of wine grapes and the making of wine. However, defining *wine-tourism* is again more complex. Because both wine and tourism industries can be engaged in wine-tourism the definition should reflect both of these component industries (Jago et al., 2000). In this study, wine-tourism is considered as special interest tourism (Derrett, 2001), which to some extent negates industry bias because it focuses on the particular tourist's interest in wine. Wine-tourism is therefore understood to mean the provision of customised leisure and recreation experiences driven by specific expressed interests of individuals and groups in wine.

1.6.2 Study Organisation

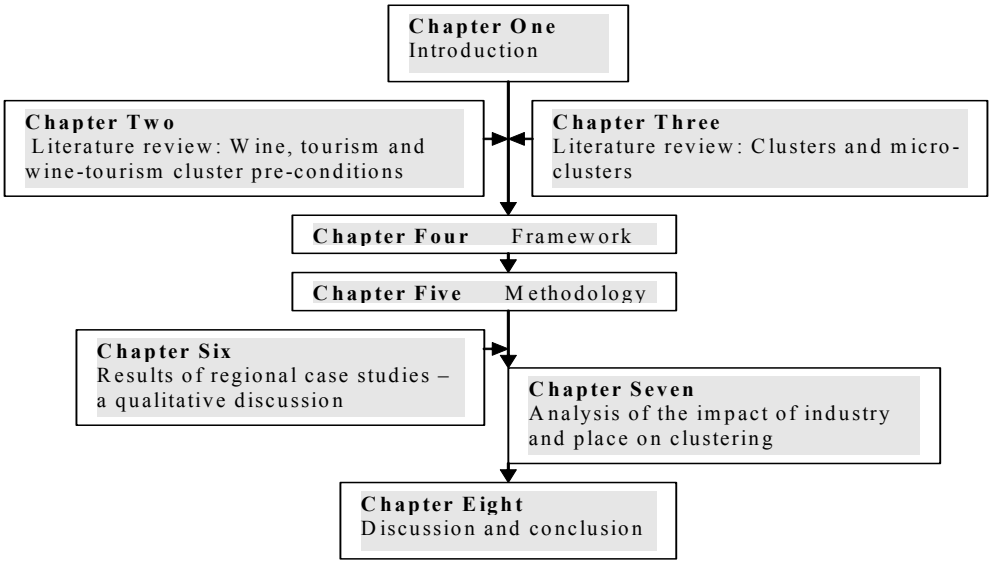
This study is multidisciplinary and includes complex ideas and theories about locations, industries, clusters and relationships. Consequently it is organised using a framework approach, which provides both a structure and a methodological approach specific to this study. The rationale of the framework and its application is outlined in Chapter Four. As a result of using this approach, many of the complexities of this study have been simplified. The framework is used to identify the dimensions of each cluster being studied, allowing their classification as particular types of clusters. This provides the basis for identifying how, and to what extent, co-located clusters complement each other. The framework also provides the structure for identifying cluster strengths, passive and active cluster behaviours, and the importance of clustering processes on an industry and location basis.

As the study requires the classification of micro-clusters and understanding the processes of clustering, both qualitative and quantitative approaches are used. Adopting a case study approach, in conjunction with providing the organising framework for the three regional studies, allows some comparative information to be gathered using a range of primary and secondary data gathering tools such as archival data, interviews and questionnaires. Yin (1994) contends that a case study approach allows a contemporary phenomenon (such as clusters) to be analysed in a real-life context when "the boundaries between the phenomenon and context are not clearly evident" (p.13). A full description and justification of the methodology adopted for this study is provided in Chapter Five.

1.7 Thesis Outline

This thesis comprises eight chapters; Figure 1.2 represents the structure.

Figure 1.2 Structure of the thesis



The study focuses on clustering in the wine and tourism industries and Chapters Two and Three provide an overview of these domains. Chapter Two is a discussion of the wine and tourism industries, together with an overview of the current research in wine-tourism. The chapter also introduces the particular aspects of these industries that might influence how they function as clusters.

Chapter Three is an overview of clusters in general, and micro-clusters in particular, and how they apply in a rural and regional context. A discussion of the diversity of cluster models and methodologies highlights the current focus of cluster research on large export oriented industries. This chapter outlines the evolution of cluster theory, highlighting its complexity and the process of clustering. The chapter pays particular attention to those aspects of clusters and the clustering processes that are relevant in rural or regionally based industries of limited critical mass. It introduces micro-clusters and how they may relate to each other – a key point of interest to this study.

Chapter Four develops a framework for two purposes: to organise the study and to guide the methodological approach. The framework ensures the structure of the study sits within cluster theory. This framework is also embedded into the methodology adopted for this study, which is described in Chapter Five. The research paradigm involves both inductive and deductive techniques. A case study methodology was selected as the basis for the regional studies, and the tools used for data collection and the data sources are described in this chapter. Chapter Five also outlines the survey methods employed, the types and nature of data gathered and the tools used for the data analysis. The issues of validity and reliability are also addressed there.

Chapter Six contains the regional case studies. It discusses the primary and secondary data gathered through the case studies for each of the three study regions. The chapter describes and classifies each of the wine and tourism clusters, based on the framework described in Chapter Four. The chapter identifies cluster pre-condition, passive cluster processes and active cluster processes of the wine and tourism clusters in each of the regional studies, and analyses them using predominantly qualitative methods. In addition to analysing the strength and structure of each cluster, Chapter Six also describes the nature of the relationships between the wine and tourism clusters, and determines the extent of their overlap and complementary for each case study region.

Chapter Seven analyses further the data discussed in Chapter Six using more sophisticated statistical analyses. The aim is to simplify those dimensions of clustering identified in Chapter Six in order to facilitate comparisons between each region's characteristics to determine if there are regional differences in how these clusters perform and relate to one another; hence illustrating the relevance of place in clusters. Furthermore, the chapter compares the data on an industry basis to gain an understanding of the implication certain industry characteristics may play on how these clusters function and relate to each other. Finally, there is an examination of whether the overlap between these co-located clusters has clustering characteristics that might distinguish it from either industry. This chapter provides evidence of whether industry or place has an effect on clusters activity.

Chapter Eight presents the conclusions of this study and discusses these in the context of wider implications for regional wine and tourism development and wine-tourism opportunities. It also draws conclusions on the implication of location and industry type on clusters and clustering processes. In discussing these conclusions, the contributions the study makes to regional wine-tourism development, regional development strategies in general, and the role of micro-clusters

in particular in cluster research, are summarised. In addition, the chapter presents the cluster complementarity model for wine and tourism micro-clusters developed in the study. The final chapter also provides specific strategies for each of the case study regions.

Chapter Two Regional Wine and Tourism Industries

2.1 Introduction

Many studies of performance, innovation and clustering contend that industry does matter (Porter, 1998; Rosenfeld, 1996b; Swann, Prevezer, & Stout, 1998); in wine and tourism, this might also be expected to be the case. Co-operative behaviour is important in wine and tourism industries because these industries have a large number of participants from a range of sectors, and because of the nature of knowledge and knowledge transfer and the competitive rules and path dependencies of these industries. In addition, industry provides a context for the research. To understand the processes of collaborative behaviour, innovation and competition there must be recognition that context matters. It influences the competitive dynamics of an industry (Porter, 1998), the scope for complementary activity and knowledge transfer. Hence, while this thesis will put forward some generalisations for cluster behaviour these will be moderated by the effect of the industry type.

In this chapter, Section 2.2 describes what is meant by the terms industry, region and cluster in the context of this study. The remainder of the chapter is an overview of three bodies of literature –tourism and the tourism industry (Section 2.3), the Australian wine industry (Section 2.4) and wine-tourism (Section 2.5). In discussing these three fields, attention is specifically drawn to the nature of these industries, their implications for regional Australia, the pre-conditions for their establishment in particular regions and how these can influence the development of these industries and activities in terms of innovation, change, growth and performance. This chapter also identifies aspects of these industries that may influence their ability to form regional and industry based clusters. The study is set in a specific geographic

location – western and central Victoria; within the chapter, reference is made to the specific nature of the industries and their enterprises within these geographic confines. Section 2.6 concludes the chapter and summarises the distinctions made between the industries of wine and tourism and their complementarity in wine-tourism, and how this might influence pre-condition for establishment and cluster development. The main themes identified have developed and shaped the research questions that are posed in this thesis.

2.2 Industry, Region and Cluster

The concepts of an industry, a region and a cluster are ways to describe and understand how wine and tourism enterprises are organised, interact, and compete in specific geographic locations. Exploring these concepts is important in determining what affects the development of wine-tourism as a new industry or sub-industry in specific regions. It is therefore important to clarify what is meant by industry, region and cluster in this study.

An industry is essentially a group of establishments or businesses that produce related goods or services (Jackson, D., 1989). Jackson broadens the classic SIC to include interrelationships and dominant product-market attributes. In this context, tourism may be identified as an industry, but one that has significant breadth and scope, complex supply chain relationships and a heterogenous market structure. The wine industry is narrower and involves a more easily identified range of establishments. Furthermore, the wine industry is more homogenous as an industry, but does not fit solely within the agricultural sector or the manufacturing sector. Therefore, SIC data require considerable interpretation and some modification if it is to represent the scope of these industries.

Both tourism and wine enterprises are located in diverse parts of regional Australia. In this study, a region describes a common set of locational attributes that may together influence competition and collaborative behaviour. Such regions can have both tourism resources and wine resources, and some similarities in their wine and tourism industry development.

Clusters bring together the notion of industry and location, since they are agglomerations of activities, organisations and institutions that are linked by location. In Chapter One, clusters were interpreted as a group of establishments that are co-located and interact with each other and have some interdependency which may or may not be recognised economically or strategically (Rosenfeld, 1997). This means that clusters may be loosely formed by simple co-location and passive interaction, may be the result of actively sought co-location benefits such as joint marketing, or focused around a dominant player or centre of excellence. They also serve as a forum for competitive interaction. Clusters are important in this study; they are described in depth in Chapters Three and Four of this thesis.

The study concerns the co-location of different industries – wine and tourism – and this requires the identification of pre-conditions that might determine the success of these regional industries. These pre-conditions may relate geographic co-location, economic characteristics or social attributes of the region. Cluster pre-conditions are those conditions that need to be present to initiate or sustain a cluster. P. Brown (1999) refers to cluster pre-conditions, as those conditions that are present in cluster development.

2.3 The Tourism Industry in Australia

The growth of the Australian tourism industry, and its continued expansion into regional and rural parts of the country, has implications for the economic future of many such areas (Blamey & Hatch, 1998; Prosser, 2001). A number of important industry-specific features of the tourism industry influence the way in which it operates in the regional economy. This section outlines issues concerning the definition of the tourism industry, the measurement of its economic impact, and the influence this has on interpreting how regional businesses are engaged in tourism and how they may contribute to tourism cluster development.

As previously indicated, ANZSIC classifies industries within Australia by using related types of commodities, economic activity or transactions as the means of industry identification. This approach is problematical when applied to tourism, because of tourism's broad base of activities and participants. Activities that form significant parts of the tourism industry are classified

under a range of industry divisions; however other aspects of tourism, such as travel, are not fully captured using this classification. In addition, accounting for tourism in Gross Domestic Product calculations is further complicated by factors such as the purpose of the travel and whether a consumer of a tourism product or service is considered a tourist, a visitor or a traveller (Australian Bureau of Statistics, 1999; Barry & Robins, 2001). Consequently, measures of the economic impact of tourism are varied.

Use of the TSA is an attempt to more accurately measure the economic impact associated with the tourism industry (Australian Bureau of Statistics, 2002a). This approach indicates in which sectors and in what locations tourism contributes to the economy. However, this measurement does not clearly identify who is involved in the industry and how industry participants relate to one another in the regional tourism value chain.

2.3.1 Tourism as an Industry

Given the growing economic importance of tourism (Australian Bureau of Statistics, 2004), it is becoming increasingly important to be able to measure and classify its activities. Consequently, the questions – what is tourism and who is the tourist – have been the subject of considerable debate. This understanding is complicated by the nature of tourism and the breadth of this industry.

To date, standard definitions for tourism are not agreed upon, and the literature demonstrates that definitions vary according to the purpose of the specific study undertaken (French, Craig-Smith, & Collier, 1995; Hall, 1995; Jackson, I., 1989; Leiper, 1979, 1990, 1995; Leiper & Carlsen, 1998; Williams, 1998). This lack of a precise definition means the term tourism is used loosely and has been interpreted variously as: the activity of a tourist; a market; a sector of the economy; an industry; and a field of academic study. This variety reflects the multi-disciplinary nature of tourism and suggests that it is a complex phenomenon (Leiper, 1990).

This phenomenon was described by W. Hunziker, an early tourism researcher, who included in his definition the notion of relationships, and defined tourism as " ...the sum of the phenomena and relationships arising from the travel and stay of non-residents, in as far as they do not lead

to permanent residence and are not connected with any earning activity (Hunziker, 1951 cited in French, et al., 1995, p.3).

This definition may not satisfy those seeking to define tourism for the purpose of measuring its economic significance. However, it does capture certain key aspects of tourism that remain important for current research debates enabling a better understand of the complexity of this industry. In particular, and for this study, it is concerned with relationships between those engaged in the tourism endeavour.

Whether or not tourism is defined as an industry is also a matter for some debate. The contention that tourism is not an industry, but rather a partially industrialized activity made up of fragments of other industries, is an interpretation that Leiper (1979) proposed and this perspective remains relevant to this study. S. Smith (1998) concurs, writing that tourism in the traditional macro-economic context is difficult to define as an industry; rather it is "…a 'synthetic industry', a 'matrix industry', or a 'composite industry' – but still an industry" (Smith, S., 1998, p. 52).

The ABS describes the tourist industry as the "…activities of all establishments which provide goods and services to a person travelling away from home" (Australian Bureau of Statistics, 2002b, p. 2). However, the question of how to measure these activities is unclear. The term *visitor plant* is used by the ABS to define a range of tangible and intangible factors that attract or cater for tourists, many of which are difficult to measure. In addition, local residents utilise many of the services and products used by tourists, and delineating these user groups is problematical (Leiper 1979; Smith S., 1998; Jackson I., 1989). The wide range of activities and relationships associated with tourism indicates that not all tourist activities necessarily involve business transactions; for example, a vista or historic site may provide pleasure but at no direct cost to the tourist (Leiper, 1990).

Demand side measurement of the tourism industry has been largely addressed by the TSA (Australian Bureau of Statistics, 2002a). The subsequent shortfalls in data on supply side activity and interrelationships, and data identifying businesses which actively supply tourism product, are concerns for regional tourism studies in general. These data gaps are particularly relevant for this study where it is the interrelationships between co-located enterprises across a

range of sectors and industries that may prove to be of particular importance to the development of wine-tourism.

A changing interpretation of tourism, from one that specifies only travel outside the normal place of residence for activities associated with pleasure (French et al., 1995) to one which includes any form of travel (Australian Bureau of Statistics, 2002b), has broadened the scope of this industry. Broadening the definition of tourism may reduce the uncertainty as to what tourism is and who is a tourist by including all travel and its transactions and activities as part of the industry. Furthermore, it may help to simplify the understanding of tourism activity and its meaning in national income accounts. However, it has also frustrated those who argue that travel associated with occupation is not tourism, and still fails to recognise the role of those engaged in the industry, particularly from the supply side.

This discussion confirms that tourism does involve a complex set of interrelationships between people, places and products, and these are difficult to identify and measure precisely using most economic data sources. It may also be that this diversity of tourism activities, and its broad scope as an industry, has an impact on the collaborative and competitive interactions that occur between co-located tourism businesses and within the tourism industry.

The breadth of the tourism industry and the uncertainty as to who is involved may be factors limiting co-operation within the industry (Jackson, I., 1989; Leiper, 1990). Uncertainty regarding who is involved, either directly or indirectly, in the industry restricts the level of interaction between some participants. Understanding interaction between businesses in tourism is important in this study, and characteristics evident within this industry suggest that this interaction is less likely to occur in tourism than in more clearly identified industries with a narrower scope of interest.

Considering such issues, alternative classifications may be needed if studies focusing on regional tourism developments are to become more meaningful. It would be necessary for such classifications to recognise the breadth of tourism and not simply be concerned with measurement of demand side economic effects, but also with value chains, interaction and importance of location. This is where the concept of clusters may play a role.

2.3.2 Regional Tourism

Regional tourism is significant in both international and domestic tourism markets. The increasing number of international tourists interested in nature-based or rural tourism has had an impact on regional tourism profiles in Australia (Blamey et al., 1998). This trend is not only evident in Australia but is reflected internationally, and the World Tourism Organisation considers there is a growing market for regionally based rural tourism (Cabrini, 2002).

Regional and rural tourism are often synonymous; aspects of both are relevant in this study. Wine related tourism, or wine-tourism, is partly associated with the rural culture and agricultural produce of the vigneron; it is location specific and essentially rural tourism. On the other hand, wine production (wineries) and the experience of the wine product can be derived independently, and need not be region specific or part of a rural experience. Therefore, rural tourism, that is the tourist experiences gained from some rural based activity or product within the confines of the rural setting, (as proposed by Cabrini, 2002), cannot be expected to encompass all the features of wine-tourism. Rather, regional tourism more accurately describes wine-tourism because it can include a range of types of tourism that occur in the region. In this study, regional tourism is defined thus: "Geographically it includes large regional centres, country villages, the coast and coastal resorts, rural countryside and natural areas. Thematically it encompasses rural tourism, nature-based tourism, ecotourism, backpacker tourism, adventure tourism, industrial tourism, educational tourism, events and other" (Tourism Victoria, 2002a, p.3).This definition recognises the diversity of tourism experiences that can be associated with wine-tourism.

2.3.3 Pre-conditions

A number of factors identified in the literature influence a region's tourism potential. In this study, these factors are referred to as pre-conditions. They comprise those aspects of a region that have a geographic, economic or social predisposition for regional tourism development. These pre-conditions need not be oriented toward tourism developments but may be there by historical accident or chance.

Successful regional tourism often requires some natural advantage which stimulates tourism enterprises to agglomerate. However, there is also scope for the industry at the local level to

develop beyond this natural advantage. This is the essence of many successful regional clusters (Swann et al., 1998) or industry agglomerations. Chance developments are less predictable and may be sparked by unrelated activities or motivations that, because of circumstances, lead to tourism activity. This is often the case with industry based tourism – agri-tourism and wine-tourism – which in turn provides the impetus for special interest tourism development (Douglas, Douglas, & Derrett, 2001).

Hall (1995) argues that, to take advantage of the growth in specialty travel, Australia's regional areas must recognise a pre-condition for these developments is a symbiotic relationship between the consumer and producer, which links the special interest of the tourist and the product being developed. This can be further enhanced if businesses interact and collaborate in this product development, linking it to a location or destination. The successful development of wine-tourism is a case in point because it is often reliant on regional reputation and collaboration between producers of wine, tourism enterprises and special interest tourists. This study is concerned with the pre-conditions that facilitate this type of regional tourism development.

State and local government initiated regional tourism development agencies often adopt market lead approaches to tourism development based around regional destinations (Jenkins et al., 1997). The competitive environment that is created between these regional destinations and between individual product markets is sometimes fuelled by the need to draw tourists away from competing regions (Killion, 2001). As this competition escalates, new regional destinations develop and grow while others stagnate or decline (Sorensen, 1990). As a consequence, supportive public policy, investment and infrastructure can be an important pre-condition for tourism growth in many regions, particularly in those areas without obvious major attractions or where there are many small-scale yet competing tourism enterprises.

Tourism agencies can play a major role in stimulating tourism development in these regions, and where opportunities may be limited by the capacity of rural communities and producers to be involved in tourism (Hall, 1995). In this study, tourism agencies and government sponsored promotions focusing on regions and locations stimulate a region's tourism development potential and the competitive behaviour between regions. As such, they may influence the level of collaboration and complementarity between sectors and industries such as wine and tourism. On the other hand, if regional tourism developments relied solely on a bottom-up approach that involved no policy initiatives, the capacity of the industry to develop would be limited to those

regions with an existing strong tourism resource base; those without such a resource may stagnate or develop in a fragmented way.

A significant component of the regional tourism market is domestic tourism, often characterised by those Visiting Friends and Relatives. This is particularly the case where tourist destinations are also regional centres. This factor is relevant to this study which focuses on two major regional centres, Ballarat and Bendigo. Capturing and developing these tourism markets requires a co-ordinated effort that involves the community, government and the tourism industry (Hall, 1995; Jackson, 1990), and requires strong linkages between tourism businesses, other stakeholders and the community. An environment conducive to the development of strong linkages among stakeholder groups which can influence regional tourism and product development is a required pre-condition to regional tourism development (McIntosh, Goeldner, & Ritchie, 1995). However, these linkages and how they develop are not well understood in the tourism industry.

In some regions, tourism potential is not realised because these linkages are undeveloped or not recognised. In other instances, there are negative socio-cultural issues resulting from tourists interacting with local residents or businesses, and issues related to sharing local resources (Prosser, 2001) that limit tourism development. These are often referred to as *social constraints*, where tourism exceeds the social carrying capacity of a region (Hall, 1995; Jenkins et al., 1997; Leiper, 1995). A better understanding, both of the capacity for a region to create linkages, and the nature of linkages at the regional level, becomes particularly important in situations when tourism shares or competes for resources with other sectors or industries. These factors may also have implications for tourism investment and hence the potential for tourism development in a particular region (Hall, 1995). Ross (1991) suggests that in such an environment there is some scepticism regarding the benefits, or otherwise, of tourism for a region's economic growth. Therefore, the capacity of a region to develop strong linkages – a pre-condition for successful tourism development – is not generally taken into consideration.

In this study, it is important to identify the pre-conditions for tourism development and, in particular, what pre-conditions encourage businesses to establish and interact in a region. The study concerns the co-location of different industries – wine and tourism – and their enterprise; hence pre-conditions associated with location, linkages, competition and public policy are of interest. The pre-conditions identified may determine the success of regional tourism

development and when these relate to geographic co-location, they may become critical to the development of tourism clusters.

2.3.4 Clusters in Tourism

There are several characteristics of the tourism industry that are important when identifying clusters and the processes of clustering. Understanding the characteristics and how they might influence the industry's capacity to form clusters or engage in clustering is important, and will influence how the outcomes of this study are interpreted. A detailed discussion of clusters is provided in Chapter Three.

Most cluster studies rely on broad industry definitions, together with traditional, statistically based cluster analyses that use standardised industry data, often in the form of input/output tables (Institute for Strategy and Competitiveness, 2004). These types of traditional cluster analyses are not generally applied to tourism, largely because the types of data needed are not easily available and the scope of the industry is not easily defined. These are some of the issues confronting this study which have influenced the cluster approach that has been adopted.

In addition to difficulties in identifying tourism clusters, there are other aspects of the industry that influence the processes of clustering in tourism. The concept that clusters enhance competition and co-operation, and these can be mutually beneficial (Enright, 1996; Jorge, 1978), is not generally evident in the tourism industry. Businesses involved in tourism are more likely to see themselves as competitors rather than potential partners or allies (Smith, S., 1998), thereby restricting the productivity and potential of regional tourism development. Leiper (1995) argues that "clustering strategy has little potential in modern tourism" (p. 94), while S. Smith (1998) contends that in the tourism industry "it is rare to find integrated, industry-wide, co-operative marketing strategies with a commitment to sharing data and research and a willingness to work together an industry wide challenge" (p.33). Consequently, the benefits of competition and co-operation between co-located tourism businesses may not be fully realised. This is perhaps one reason why few successful tourism clusters have been reported in the literature.

An alternative approach to understanding these processes is to interpret the fragmented tourism industry as a tourism system, which includes economic, cultural and physical components that interact (Jackson, I., 1989; Leiper, 1990). The concept of a tourism system has some elements that are common with a cluster; it encompasses economic, geographic and social elements, and there is interaction between these elements and industry participants. Use of this non-standard cluster approach may be a useful way to describe a region's tourism industry.

Combining this approach with other aspects of the industry, when viewed from a cluster perspective, may make clusters more relevant to tourism than initially thought (Nordin, 2003; Porter, 1990, 1998; Rosenfeld, 1997). For example:

- horizontal integration which increases market concentration
- economies of scale through chains and packaging
- innovation through information technology
- branding in mass and niche markets
- outsourcing
- networks based on strategic alliances.

These factors have enabled regional tourism to gain some competitive advantage in the marketplace (Ioannides & Debbage, 1998; Porter, 1990). This situation is exemplified by the confluence of economic and spatial inter-relationships in tourism through regional destination planning, which is providing an impetus for regional tourism cluster developments (Enright & Ffowcs-Williams, 2000; Gunn, 1994).

Despite these apparent similarities in tourism development and clusters, they are not a panacea for the formation of tourism clusters. There remain certain key cluster requirements that are absent, or obscured by the breadth of the industry and its involvement in several overlapping industry categories (Porter, 1998). As previously indicated, the decision to adopt a cluster approach in this study of regional tourism necessitates some divergence from a traditional cluster approach. Rather, the focus is on enterprises that recognise they are part of, or complementary to, the tourism industry and not on industry classification alone. The importance of complementarity in tourism is supported by Porter (1998) who relates quality of visitor experience to more than the primary attraction, but also with other related and complementary facilities or seemingly unrelated experiences. The concept of complementarity in understanding

tourism clusters is significant in this study; it forms a key part of how relationships between co-located wine and tourism enterprises are interpreted.

2.3.4.1 Tourism cluster studies

Specific challenges associated with tourism cluster studies have been identified, particularly those associated with identification and industry classification. These become more notable in the small scale regional tourism situations where this study is focused. These challenges are exaggerated by the lack of critical mass, geographic isolation, infrastructure shortfalls and shortages of skilled resources (Smith et al., 1999) that exist in many regional tourism areas, and which are important for cluster identification. As a result, a range of tourism cluster identification approaches have been undertaken with varying degrees of success.

Cluster approaches in the United States are often reliant upon input/output data and national employment and economic impact data. Using this approach, national tourism clusters have been identified (Munnich et al., 1999); although with some difficulty owing to data inadequacies (Roehl, 1998). In Australia, no attempt at national tourism cluster identification had been undertaken at the time of writing this thesis. Attempts by some state governments to identify particular tourism clusters have shown varying levels of success. The first of these initiatives used a collaborative approach based around industry associations and agencies, and not an industry classification approach. This program identified an International Tourism Cluster in South Australia (Blandy, 2001; Smith et al., 1999). One small regional cluster emerged from this initiative whilst the larger, international cluster stagnated. A similar collaborative approach was used to identify and engage a tourism cluster in Northern Queensland utilising marketing to drive the cluster (Cairns Regional Economic Development Corporation, 2002). This cluster has begun to develop some clustering characteristics based around collaboration and regional branding (Nordin, 2003). In summary, it can be shown that while there is evidence of cluster initiatives in tourism, research into the success or otherwise of regional tourism clusters is limited.

The cluster approaches described may be useful in regional tourism development. However, owing in part to the specific characteristics and breadth of this industry, the identification of clusters requires an approach less focused on industry identification and more on participating enterprises, formal alliances, collaboration and co-location. The characteristics of both industry and location are factors considered in this study. Furthermore, because this study concerns both

the tourism and wine industries, characteristics of the wine industry also need to be considered and, together with their co-location, might play a part in the development of wine-tourism.

2.4 The Australian Wine Industry

Wine, unlike tourism, is a more narrowly defined industry. Comparison of the Australian wine industry and the Australian tourism industry indicates that both have experienced similar growth trends in recent times; however they differ in terms of scope and industry projections. The wine industry has a number of unique characteristics that have influenced its growth as an Australian exporter and its competitiveness on the world market. The industry is spread across a number of diverse locations in regional Australia; hence, it can produce a wide variety of wine styles. It has also demonstrated a level of innovation, competition and collaboration that has set it apart from many of its competitors (Marsh & Shaw, 2000; Porter, 2003).

Currently, the wine industry is facing a number of challenges as a result of a changing world market and a changing industry structure. The Australian wine industry has expanded primarily through exports and is increasingly reliant on these overseas markets (Australian Bureau of Agricultural and Resource Economics, 2004). However, this reliance creates some uncertainty about its future with the Australian Wine Export Council (2003) reporting a reduction in the value growth rate of wine exports in 2002-2003. Whilst volume growth rate continues, the reduced value growth rate has been largely due to a predominance of sales to the United States and the increased value of the Australian dollar, an increase in competition from other producers in countries such as Chile and Argentina, and discounting in some major export markets (Australian Wine and Brandy Corporation, 2003).

In addition to this changing market, and perhaps in response to it, the structure of the wine industry is also changing. From a past dominated by of small to medium wine producers, it is now an industry dominated by fewer, very large, export oriented companies. The 20 top companies now produce over 95% of Australia's wine. The large numbers of small to very small enterprises that exist are generally involved in the domestic market. The importance of the domestic market for these smaller producers, and their need to remain competitive with larger

companies, has resulted in a number of strategies being identified in a recent report commissioned by the Commonwealth Government. In particular, this report identified the importance of regional branding for niche marketing as a strategy for the long term growth and profitability of such businesses (ACIL, 2002). This study is mostly concerned with small to very small wine related enterprises in regional Victoria which dominate regional wine producing areas and wine-tourism development. Due to niche marketing and local sales, a number of these enterprises have persisted through previous industry down-turns.

The boom/bust nature of the Australian wine industry, which has been well documented, has generally occurred when vineyard area and production results in oversupply and subsequent low prices (Anderson, 1999). The recent expansion of the industry, combined with shifts in pricing and industry structure, may see a re-emergence of this pattern. However, Anderson does not think this pattern will necessarily recur because of some of the unique characteristics of the present day wine industry that might protect it from such cycles. These include the focus on export markets, the internationally recognised quality of Australian wine, the promotion of health benefits attributed to wine and its perceived value for money on the international market.

The export predominance of the industry has meant that most research has focused on wine in the global market place (Anderson, 2000; Marceau, 1997; Marsh & Shaw, 2000). As a consequence, domestic markets have been largely ignored and are not recognised by Anderson (1999, 2000) as an industry strength. However, the market is changing, and Australian wine is now strongly promoted to the domestic market through lifestyle and tourism campaigns. Domestic sales now make up 45% of the Australian wine market[1], and competition in this growing domestic market is increasing. Many existing and developing wine regions, which are made up of large numbers of small enterprises, have become increasingly engaged, either intentionally or by necessity, in regional tourism based activities. It is this sector of the industry which is of particular interest in this study.

[1] Source of wine statistics https://www.awbc.com.au/winefacts/default.asp, downloaded 20/5/04

2.4.1 The Regional Wine Industry

Comparatively little has been published on the regional wine industry in Australia. Until the recent ACIL (2002) study on small and medium wineries, little documented evidence of the role of the wine industry in regional Australia has been reported. However, though the ACIL report is extensive, it is largely concerned with increasing the profitability of winery businesses, and less concerned with the impact of wineries on the regional economy.

There can be little doubt that the wine industry over the past 10 years has been, and continues to be, important in many parts of regional Australia. The contribution of a wine industry to a regional economy can be significant. In fact, significant wine related investments in many regions have made an economic impact in both established wine areas and those where the industry is in its infancy (Productivity Commission, 1995). This study is concerned with the wine industry in different parts of regional Victoria, ranging from those areas that have had a long wine history to other parts that have only recently developed, or are re-developing, a wine industry. Of particular interest is why vineyards and wineries establish in these areas, and what are the factors or pre-conditions that might attract new wine investments to particular regions.

2.4.2 Regional Wine Industry Pre-conditions

The narrower scope, history and regional reputation of the Australian wine industry has generally supported a culture of collaboration and trust. This may also be a consequence of the social connotations of wine that derived from those pioneer wine producers in regional Victoria who shared a common goal: to produce high quality wine that was recognised internationally (Comettant, 1980). This capacity for the industry to collaborate internationally but compete locally (Marsh & Shaw, 1999, 2000) is reported as one of the key reasons for its current success. This factor is recognised by Anderson (2001b) who observes that while rivalry and competition exist between producers at the local level, collaboration and innovation around shared concerns of future international competitiveness and profitability draws this industry together.

There are a number of pre-conditions for the establishment of a regional wine industry that are associated with natural advantages, but they extend beyond the suitability of a natural resource base for wine production. Anderson (1999) identifies the importance of recognised wine region boundaries as a pre-condition to success. These boundaries can include those registered

formally as Geographic Indications[2] or those that are associated with other regional attributes or reputation. Differentiation between wine regions is a highly effective way to promote localisation (Anderson, 2001a). As a result, regional branding and recognition become increasingly important (Anderson, 1999) and a source of competitive advantage.

A region that has a developing wine reputation also has a pre-condition for the growth of the region's industry. Regional branding also has strong links to tourism services, which are often regionally based with a strong local identity. In addition to the regional reputation and branding pre-conditions, innovation can attract new investors and enterprises by increasing, for example, the reputation of the product, the production methods or production capacity (Marsh & Shaw, 1999, 2000). In recent times, and emerging partly in response to the changing structure of the industry, small operators are beginning to benefit from collaborative marketing, sharing of information within regions and better co-ordination of other co-located wine related activities, including tourism (Anderson, 1999).

The pre-conditions for regional wine industry development in Australia are diverse and include natural resources, reputation, export focus, collaboration and innovation. These factors reflect some of the characteristics of clusters, which is why Porter and Solvell (2002) describe the Australian wine industry as a cluster. The following section outlines some of the research on wine industry clusters, both in Australia and in other parts of the world. Some characteristics pertinent to this study are indicative of industry attributes that might affect the way it operates in regions, and with other co-located industries such as tourism.

2.4.3 Clusters in the Wine Industry

Marceau (1997) was the first to describe the Australian wine industry as a natural resource-based cluster. She did so because it had enough commonality of resource to function as a cluster, and in this sense it differs from tourism. Marceau identifies three contributory factors for successful clusters:

[2] Geographic Indications (GI) classification. For this to be achieved a region must be a single tract of land covering a specific area. A region is also required to be discrete from adjoining regions and have measurable homogeneity in grape growing attributes over its area

- producers are geographically concentrated
- wine regions are geographically separated but producers have common interest in technology and oenology
- education and R&D have provided common training facilities developing world-class training for winemakers, and horticultural research creating a highly skilled and highly technical industry.

These are all key cluster factors and Anderson (2000) and Marsh and Shaw (2000) have added to this body of knowledge. Embedded capabilities and knowledge infrastructure in the Australian wine cluster has been formalised into the National Wine Industry Research Cluster (Truss, 2001).

The Australian wine industry cluster describes the industry at a national level, and from an international perspective. Wine clusters at the regional level are not generally identified as a component of the industry. National and regional wine industries in many parts of the world have been described as clusters (Ffowcs-Williams, 1997; Mitchell, Hall, & McIntosh, 2000; Telfer, 2000) and the Californian wine cluster has been used widely as a model for cluster analysis and mapping (Alexander, Arney, Black, Frost, & Shivananda, 1997; Porter, 1998).

Using the diamond advantage framework proposed by Porter (1990), the Californian wine cluster study evaluated its competitiveness in order to improve productivity and help determine its position in the global wine market. It identified key issues facing the cluster and compared these with other wine clusters in Chile, France and Italy (Alexander et al., 1997). The resultant cluster map illustrated the inter-connectedness of elements that make up this wine industry cluster. This schematic representation of a wine cluster indicates across firm linkages, together with linkages with other clusters. These linkages were identified with the tourism cluster, the food cluster and the agricultural cluster; however, there was no exploration of the nature of these intra-cluster linkages (Porter, 1998).

The Californian study identified some key challenges facing the cluster, which are relevant when comparing this cluster to the Australian wine cluster. One of these challenges stemmed from what was termed “unhealthy cluster behaviour” (Alexander, et al., 1997, p. 15) resulting from differences in business models between mass production and niche wineries. According to Alexander et al. (1997) this resulted in:

- fragmentation and lack of co-operation amongst producers
- a lack of a cohesive industry voice
- fragmentation of marketing, promotional and research agendas
- no evidence of co-ordination between trade organisations
- a lack of research funding restricting innovation in the industry.

These types of cluster behaviour can also be detected in the tourism industry, reflecting the fragmentation and broad base of that industry (Smith, S., 1998).

Various studies, including those of Fowcs-Williams (1998), Porter (1998, 2003), R. Brown (1999), Enright (2000a), and Rosenfeld (2002a), have identified co-operation, collaboration and innovation as the essence of a functioning wine cluster. It appears that, although the Californian wine industry is a recognised cluster, under scrutiny it may not actually function as one. In particular, the larger players and small wineries have different agendas. These divergent agendas, specifically the focus on mass production by large wine producers and niche production and diversification by the smaller producers, have resulted in some fragmentation within the industry. Though not reported, this same situation may become apparent in the Australia wine cluster as the structure of the industry continues to change. However, in the absence of a comparable wine industry cluster study in Australia, these comparisons cannot be substantiated.

Research on production chains and wine quality and input/output analysis has been undertaken in Australia. For example, the Australian Wine Research Institute in Adelaide has conducted a study to identify and track wine quality factors and production chains (Brown, 2001). An analysis of the South Central region of the South Australia wine industry was attempted using input/output tables for the beverage sector, but a lack of suitable data limited this study (Chapman, 2000). For regional wine cluster studies, as with tourism studies, a more collaborative approach may be more suitable at the regional level.

In each of the regions included in this study, industry and regional studies have been undertaken, primarily to map the wine industry and develop strategies for the future. A central Victorian wine industry study covered some cluster concepts including natural advantage, production and employment implications, networks, industry association and interaction (Research Planning Design Group, 2001). The report provided some assessment of

collaboration and co-operation within the region. This study, together with other similar regional wine industry studies in western and central Victoria (Ballarat and Districts Vignerons Association, 2000a; Kronos Corporate, 2002; Research Planning Design Group, 2001; Stonier, 2001), found that marketing and branding were important but also identified issues around collaboration that restricted regional growth. These studies identified some pre-conditions of successful clusters, and these will be described in more detail in the case studies reported in Chapter Six.

Wine clusters, as with other clusters, are not always conditional on cost related or natural resource advantage, and may stop growing or decline as the customer and knowledge base changes. This is particularly the case with those wine regions dominated by small to medium wine producers that, without collaboration, may be disadvantaged in the highly competitive domestic and international market (ACIL, 2002). In addition, concerns about over-production and the changing structure of the industry mean that, for the industry to remain dynamic and maintain its competitive advantage, the development of certain cluster processes might prove beneficial. This situation, in conjunction with linkages between a regional wine cluster and other regional clusters (in particular tourism), might be important for the development and sustainability of a region's wine industry. Of particular importance in this study is the identification and understanding of these linkages, which frame the complementarity between co-located clusters such as wine and tourism.

2.5 Complementary Industries - Wine and Tourism

When put side by side, the impact of the wine industry together with the tourism industry on rural and regional economies can be linked through the development of wine-tourism. This section is an overview of wine-tourism literature. The discussion focuses on how the two industries might relate to one another at the wine-tourism interface; the regional implications of wine-tourism for both the wine and tourism industries; wine-tourism development in terms of pre-conditions and the concept of clusters.

2.5.1 The Wine-tourism Interface

This study examines the relationship between wine and tourism industries in Western and Central Victoria, and identifies their complementarity and overlap in relation to the development of wine-tourism. Wine-tourism is a term used to describe a range of activities and is often adapted to suit a particular purpose (Johnson, 1998). Jago et al. (2000) suggests there is a need to develop a definitional framework for the term wine-tourism if the sector is to be recognised and sustained in the long term; given it origins, it is important that this definition reflects both wine and tourism industry perspectives. However, most definitions of wine-tourism are framed from a tourism perspective, thereby placing wine-tourism within the tourism sphere which may not reflect who is involved and how wine-tourism is interpreted by either the wine or tourism industries.

The tourism industry uses definitions of wine-tourism based on a special interest in wine, motivated by destination and activity (wine tasting), and assumes that wine-tourism describes the winery visitor (Macionis, 1997). From the wine industry perspective, wine-tourism is not only those who visit wineries for the purpose of tasting wine, but also the potential created for retail sales at the winery or other outlets (Hall & Johnson, 1997). A definition that recognises the needs of both the wine industry and the tourism industry should therefore ensure wine-tourism includes those who are interested in wine and most inclined to purchase at the winery (Jago et al., 2000). Sutton (1998) suggests there is a common objective in wine-tourism and that is to represent a unique experience to consumers/customers, whether they are wine drinkers or tourists. However, this essentially tourism derived perspective does not take into account the importance of product purchase for the wine producer.

The interpretation of wine-tourism adopted in this study is that it is special interest tourism, which is tourism undertaken for a specific reason (Derrett, 2001). This definition goes some way to address the concerns of both the wine and tourism industries (Jago et al., 2000). In this context, wine-tourism comprises the provision of customised leisure and recreation experiences, driven by the expressed interests of individuals and groups in wine, which will maximise their opportunity to purchase wine products. This definition means that businesses involved in wine-tourism make a specific attempt to engage those interested in wine, the experience and the purchase.

Wine-tourism has become an important part of the tourism industry and, more recently, the wine industry in many regions of Australia (Carlsen & Dowling, 1999; Getz, 1999; Hall & Johnson, 1999; Hall et al., 2000; Macionis, 1999). Much of the literature has been focused on the supply-side and winery perspective of wine-tourism (Cambourne, 1999; Davies, 2000; Dunstan, 1990; Kelly, 2000; Leiper & Carlsen, 1998; Macionis, 1999; Morpeth, 2000; Sambidge-Mitchell, 1998). More recently, the demand-side which looks at the behaviour and characteristics of the *wine tourist* has been the subject of research. This research has lead to a better understanding of which market segment is most interested in wine-tourism, and how to attract this segment to a region, its expectations and purchasing power (Dodd, 2000; Heaney, 2003; Jago et al., 2000; Mitchell & McIntosh, 1999; Nixon, 1999). This has focused wine-tourism away from simply tourism experiences to one that also maximises potential wine sales.

The success of wine-tourism in Australia is recognised (Hall et al., 2000). The Bureau of Tourism Research (2000) and wine industry bodies[3] are actively involved in the collection and compilation of data on wine-tourism, and how these data might benefit the wine and tourism industries. Although these agencies contribute to the wine-tourism knowledge base, the data are primarily directed at marketing the experience and enhancing reputation to both international and domestic travellers through the cellar door, and less on growing wine sales within the broader tourism market.

The growing relationship between wine and food has expanded the scope for wine-tourism and has considerable tourism benefit (ACIL, 2002; Davies, 2000; Forrester, 2000; Hall & Mitchell, 2001; Howley, 1999). The interaction between food and wine, and the regionalisation of these products, has meant that certain regions that have both wine and food products are well placed to cater for these developing and specialist markets (Prosser, 2001). Linking wine, food and tourism is the focus of many regional tourism development initiatives, thereby creating an environment that is becoming increasingly dependent on collaborative marketing approaches between industry sectors.

Research on wine-tourism in New Zealand suggests that the tourism industry regards the wine industry as having principal responsibility for the development of these initiatives (Johnson, 1998). A recent study of Central Victorian wineries suggested that the wine and tourism

[3] These bodies include Australian Wine and Brandy Corporation (AWBC) www.awbc.com.au., Winemakers Federation of Australia (web site under development), National and State Government Tourism Departments.

industries have much to offer one another, but wine-tourism is seen to play a relatively small part in the potential expansion of a regional wine industry and is a tourism industry responsibility (Research Planning Design Group, 2001). By not fully understanding these differing perspectives, misunderstandings are likely to impact on the successful development of wine-tourism in a given region, which may be one reason why some regions are more successful in wine-tourism than others. This study looks specifically at the interaction between co-located wine and tourism enterprises, and will explore if these differences in understanding have an impact on the performance of wine-tourism in these regions.

2.5.2 Regional Wine-tourism

It is predicted that by 2008 wine-tourism in Australia will be worth A$1.5 billion annually. A shift in international tourism marketing from Australian outback and Aboriginal tourism to lifestyle tourism, of which wine-tourism is a part, is expected to contribute to this growth (Dowling, 1999). This predicted growth has focused the wine industry on the potential benefits of closer liaison with tourism, and is particularly advantageous for wine regions that have invested in wine-tourism (Madigan, 2001).

Whether wine-tourism has emerged as a new industry is not certain but it has become a recognised and important sector of both the wine and tourism industries. Specific wine-tourism strategy plans have been developed to maximise the benefits of wine-tourism at a regional and national level (Macionis & Cambourne, 2000). Many predominantly small wine enterprises have broadened their customer base by introducing wine-tourism related activities to increase their brand awareness, sales and reputation; all of which increase their competitiveness (Dowling, 1999; Lockshin, 2000). New enterprises are now emerging that are developing specific wine-tourism business plans where new products are promoted and customers targeted.

Not all wine regions can become wine-tourism destinations; this is particularly the case in those wine regions that are not already major tourist destinations (Hall & Jenkins, 1998). Smaller wine producers that have low production and margins on sales can benefit from the linkages with regional tourism activities. However, in the absence of existing tourist activity, they are not always in a position to take advantage of these opportunities. This can also be the case in those tourist regions that have limited wine related resources; for example, the Queensland Gold

Coast is a tourist region not known for wine production or wine-tourism though local wine is consumed and purchased by tourists.

Wine-tourism can become the core business for some wineries, for some it is regarded as additional to their core business activities of wine production, and for others it plays no part in their business at all (Gillion, 1998). Recognising that within a region not all wine businesses are, or indeed want to be, involved in wine-tourism provides the basis of understanding the interaction between wine and tourism and the varied level of wine-tourism development across regions.

Within regions such as the Barossa Valley in South Australian and the Yarra Valley in Victoria, many wineries have successfully diversified, or developed their core business in wine-tourism embracing tourism as a valid business strategy. However, some winery managers have frustrated regional tourism associations by hosting visitors or selling from their premises, but deliberately staying out of the business of tourism (Leiper, 1998). Regions with a predominance of this latter type of winery business might expect wine-tourism to be less well developed.

It is apparent that wine-tourism operates on different levels and for different reasons throughout regional Victoria. Jack Rasterhoff, the past Chief Executive of the Victorian Wineries Tourism Council[4], suggests why this might occur:

> There are a number of perspectives to wine tourism. For the small wineries it provides cash flow and assists them in achieving a better sales mix at a higher price or yield. It also enables them to successfully brand their product and winery. For larger wineries the effect is different. While wine tourism is an economic necessity for small wineries, large wineries often support cellar door activities as a publicity or public relations commitment (Fuller, 1997, p. 35).

Studies of wine-tourism have generally given little attention to the motivation for wine and tourism businesses to become engaged in wine-tourism. However, the motivation of these enterprises is a significant determinant in the development of a successful regional wine-tourism destination. Understanding how important it is for wine enterprises to have developed relationships with co-located tourism enterprises, and whether this is important to the success of individual businesses, is an area of research that has been largely overlooked. This is also the

[4] The Victorian Wineries Tourism Council has now been consolidated into Tourism Victoria

case from the perspective of tourism enterprises in terms of the importance they place on collaboration with wine enterprises and wine-tourism for their growth. These are important questions to be addressed and have implications in this study.

2.5.3 Regional Wine-tourism Pre-conditions

There are a number of pre-conditions to successful wine-tourism development: dependence on the co-location of wine and tourism enterprises, proximity to well-established wine or tourism centres, or population centres and regional or brand recognition (Fuller, 1997; Hall et al., 2000; Salter, 1998). It is generally agreed that wine-tourism relies not simply on the type of wine but also on where the wine is from (Salter, 1998).

There is a widespread view that cellar door sales are synonymous with wine-tourism; however, the establishment of cellar door outlets, though an important component of wine-tourism, is not the only pre-condition for successful wine-tourism development. Cellar door sales at wineries can build brand loyalty and provide economic benefit to the winery but alone do not make for wine-tourism activity (Beverland, 1999). The advantages of cellar door operations are generally marketing related while the disadvantages are cost related, particularity in areas where there are few tourists (Dodd & Bigotte, 1997). Crittenden (1999) argues that the importance of cellar door operations and wine-tourism are related to the structure of the wine company. He identifies four categories:

- Wine Corporation (export focused); high overseas sales, medium wholesale/retail and low cellar door sales.
- Junior Wine Corporation (growing export focus); growing overseas sales, high wholesales/retail sales, declining cellar door sales.
- Elite Wine Company (niche export focus); high overseas sales, low wholesale/retail sales, high cellar door sales.
- Wine-tourism Company (minimal export focus); low overseas sales, and limited wholesale/retail sales, reliant on high cellar door sales for survival.

Crittenden concludes that only the last of these categories – the Wine-tourism Company – should be involved in wine-tourism because it forms a major part of its business. Therefore, for regional wine-tourism to be successful, a pre-condition is the existence of this latter type of

enterprise. As a consequence of the growing dominance of major wine corporations in Australia and their continued focus on export markets (Marceau, 1997), wine-tourism is increasingly becoming the arena of the smaller boutique producer with a direct interest in wine-tourism, and located in areas already frequented by or accessible to tourists.

In addition to cellar doors, other activities and enterprises are important components in wine-tourism. Winery involvement in other tourism generating products, such as wine shows, wine and food events and wine sales in restaurants or entertainment venues, perhaps more than any other form of wine-tourism, gives both tourism enterprises and wine producers access to special interest customers (Snow, 1997). These aspects of wine-tourism are often overlooked and the full scope of this new or emerging industry is possibly underestimated as a result. This study pays particular attention to the interaction of wine and tourism enterprises for a range of wine-tourism related activities and does not concentrate solely on cellar door activities.

Successful wine-tourism is not only reliant on market related pre-conditions but also on a suitable environment for the establishment of new enterprises. Negative conditions can emerge at different stages in wine-tourism development. These often relate to visitor pressure or changes in the landscape or environment making wine, tourism or wine-tourism activities less productive. Environmental degradation, lack of community involvement in wine-tourism developments, increased land values, and the dispersal of wine-tourism revenue away from the community and into the hands of wine-tourism operators are some of these changing conditions (Cambourne, 1999; Macionis, 1999; Skinner, 2000).

Recognising the potential negative impacts of wine-tourism is something that has not been addressed in Australia, perhaps because wine-tourism is in the early stages of its life cycle. Later in the cycle, negative impacts of wine-tourism may emerge; for example, in the Napa Valley, California there is some evidence that wine-tourism is now limiting the success of the wine industry upon which it was founded, changing both land-use and visitor perceptions of the region (Nordin, 2003; Skinner, 2000). Skinner has identified different stages in the wine-tourism lifecycle. These are summarised in Table 2.1 and show that, as wine-tourism becomes more established, increasing co-operation between wine and tourism enterprises and strategic regional planning is required if wine-tourism is to be sustained. It is therefore important in wine-tourism studies to be cognisant of changes in the wine-tourism climate in a particular region, and the sensitivities of that region to the impacts of these types of tourism developments.

Table 2.1 Wine and wine-tourism development stages

Development stage	Wine industry development	Wine-tourism development
Exploration	Viticulture introduced – wine produced	Wine tasting enquiries
Involvement	Wine produced and recognised area becoming popular for vineyard establishment	Wine tasting interest – facility development
Development	Viticulture expansion and immigration of workers - improved economic opportunities	Area included on wine tour maps – seasonal tourism-increasing tourist numbers – other tourism developing – immigration of entrepreneurs – improved economic opportunities – pioneer wine tourists avoid area
Consolidation	Viticulture becomes area's hallmark – wineries expand – loss of some smaller operators – environmental and social problems emerge – land-use changes – land prices rise	Tourism is significant revenue stream – overwhelming tourism infrastructure – environmental and social problems emerge – land-use changes – land prices rise
Stagnation	Viticulture loses ground to urbanisation – corporate wine ventures move to cheaper areas – locals escape urban sprawl	Tourism substantial but moving to alternative locations
Decline	Remaining wineries purchase from other regions	Decline of wine-tourism – changed area character – small scale wine-tourism may survive
Cooperation (alternative)	Agricultural reserve established – viticulture maintained – urban expansion controlled	Wineries develop collective tourism plan – infrastructure improvement to cater for tourists – reduced resident visitor conflict through communication links
Conservation (alternative)	Viticulture in equilibrium with urban area – viticulture recognised internationally – wine regions culture preserved	Positive tourism trade

Adapted from Skinner (2000).

2.5.4 Cluster Concepts in Wine-tourism

Cluster studies in wine-tourism per sé have not been conducted, but there are some key aspects of the relationship between wine and tourism clusters that might be exemplified through wine-tourism. The intersection and possible overlap of these clusters and the potential complementarity between wine and tourism enterprises means that cluster dimensions, such as geographic co-location (agglomeration), competition and co-operation, collaboration, networks, niche creation, innovation and knowledge transfer, can exist in wine-tourism developments.

The literature suggests that wine-tourism benefits from co-operation and collaboration. Getz (1999) conceptualises wine-tourism as a value chain in which each stage adds economic value, with each link adding more. In addition, the establishment of networks between wine, tourism and wine-tourism enterprises is recognised as important for successful wine-tourism development (Hall & Jenkins, 1998; Johnson, 1998).

Macionis (1997), however, reaffirms that barriers to wine-tourism do exist in the wine industry. These stem from a lack of experience and entrepreneurial skill regarding tourism, particularly amongst smaller wineries, with tourism often seen as a secondary or tertiary activity in the wine industry. Conversely, Johnson (1998) sees these barriers in relation to the tourism industry which has a lack of understanding of viticultural practices, the demands of winemaking and the demand for scarce resources. As previously indicated, there can be misunderstandings and weak linkages between enterprises from different industries; overcoming these will perhaps become one of the key factors in the development of wine-tourism clusters. This study is directed toward the exploration of these interactions and may identify if the role of industry or the co-location of enterprises has consequences for wine-tourism development in the three regions under study.

2.6 Chapter Summary

This chapter has provided an overview of the literature on the nature of the tourism and wine industries nationally and regionally and their relationship in wine-tourism. From this overview, several characteristics peculiar to these industries and sectors have been introduced that are of particularly relevance to this study. Perhaps the most notable of these relates to the nature and structure of these industries and the implications of these factors for the development of clusters. In particular, the implications of the broad based tourism industry on how it is defined and described both as an industry and as a factor in regional economies have been identified. Furthermore, pre-conditions for tourism development can be contradictory. They rely on resources, relationships between stakeholders, bottom-up and top-down factors that can result in positive competitive advantage but may also cause negative competitive behaviour or community rejection. Understanding these pre-conditions at a regional scale is important for this study. It is at this juncture that the concept of clusters may prove useful. Cluster studies in tourism are not well developed in this regard and have been primarily used as a marketing tool, or have been policy driven. They have not determined pre-conditions important for the development of regional tourism activity which might lead to clustering processes.

The Australian wine industry appears more easily identified, though it still has a diverse base. It has been recognised as having pre-conditions that mean it is readily viewed as a cluster. However, there are aspects of the industry that are changing how it functions in many regions of Australia. The domestic market is somewhat overlooked in the wine industry literature, but it is this part of the industry that is of particular interest in this study. This domestic sector is particularly important for the smaller wine producers who are finding it increasingly difficult to compete on the international market; they are becoming more reliant on domestic sales though tourism and lifestyle markets.

The discourse has enabled the tourism and wine industries to be described to provide insight into how they may relate to the developing wine-tourism sector. By providing an overview of current literature on wine-tourism, it has been clearly demonstrated that there are considerable gaps in our understanding of the pre-conditions and relationships between wine, tourism and

wine-tourism. A focus of this study is to identify these pre-conditions in particular regional wine and tourism clusters, and see how these may impact on wine-tourism activity in a region.

Throughout this chapter, the phenomenon of clusters has been discussed in the context of regional wine and tourism research. A particular characteristic of these industries that suggests they may have certain cluster attributes or behaviours provides the preamble to the next chapter, which addresses the phenomenon of clusters and their application at the regional level. Chapter Three will offer an overview of the current literature on clusters, and look at how clusters may be used as the lens by which a better understanding of regional wine and tourism industries and their interrelationships might be explored.

Chapter Three Clusters and Clustering

3.1 Introduction

Successful wine and tourism industries are in part dependent on collaboration and innovation – all of which are not linked to an obvious resource advantage. Descriptive industry classification systems based on processes, inputs and outputs do not adequately describe interaction and competitive relationships. In terms of resource advantage, its significance in regional industry development varies from industry to industry and place to place. In the previous chapter, characteristics of two distinct industries – wine and tourism – were presented, and issues concerned with the interaction of these industries when co-located in the form of wine-tourism were identified. In this chapter, the views of a number of economists, economic geographers, business writers and theorists are discussed that relate to the notions of industry and locations and the cluster phenomenon. This provides the basis for the adoption of clusters as the lens used to understand particular wine and tourism industries in regional Victoria, and how they interact in the potential development of a wine-tourism industry.

This chapter discusses the literature of industrial location, suggests a number of possible explanations for the phenomenon of clusters, and investigates the importance of the processes of clustering in rural and regional settings. The chapter begins by defining what is meant by clusters in this study, traces the evolution of clusters, the different interpretations and models associated with them, and how clusters work under different scenarios. The chapter then focuses on clusters in rural and regional situations, and introduces the concepts of micro-clusters, cluster complementarity and cluster overlap.

3.2 Clusters

In this study, the concept of clusters is being used as a way to recognise patterns of co-operation and co-location, and to document what is happening in the wine and tourism industries in selected regions of Victoria. It is expected that in using this approach, some of the aspects of how and why these regions are developing in particular ways in relation to wine and tourism activity will be understood. The need to understand the complex regional economic system that considers geographic co-location, economic integration and social implications as key elements of regional development promotes the use of clusters in this context.

3.2.1 Defining the Term

Murphy, Pfister and Wu (1997) suggest the term cluster is being used "loosely and means different – although interrelated – things to different people" (p. 2). Consequently, cluster theories, models, frameworks and methodologies have developed from a broad definitional base. The following discussion of definitions draws attention to those that have particular application to this study.

Initially, in the 1970s, the term cluster was used in the economic context and referred to industry sectors related through formal production linkages regardless of geographic location (Czamaniski 1974). Almost 20 years later, Porter (1990) brought this term into popular use in economic development thinking. His initial use of the term was similar to that of Czamaniski; however Porter recognised that clusters often reflected spatial concentrations of activity. The following definition, developed by Porter, has become the most widely used in the literature: "a cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities" (Porter, 1998, p.199).

Although Porter's definition is widely used, the literature suggests that there is no single cluster definition that is unanimously accepted (Murphy et al., 1997). As a result, it is seen as acceptable to choose a definition that reflects best the intent of the research being undertaken (Verbeek, 1999).

In this study, the focus is centred on those clusters that may not fit with clusters that depend on substantial regional agglomerations of activity. Instead, clusters in this study are more akin to those in rural and regional areas that may not contribute significantly to the regional economy. The broad interpretation of clusters and their application in rural and regional situations, developed by Rosenfeld's (1997) has been chosen as the definitional basis for this study: "[a] cluster is very simply used to represent concentrations of firms that are able to produce synergy because of their geographic proximity and interdependence, even though their scale of employment may not be pronounced or prominent" (p. 4).

Most cluster definitions and subsequent methodologies focus on regional or national economic competitiveness and therefore do not necessarily apply to small-scale regional micro-clusters (Benneworth & Charles, 2001). Rosenfeld's definition is not restricted to these types of clusters; it can include those clusters that may not be large or internationally competitive, and that may not have clear SIC characteristics. The implications of this, in the context of this study, means clusters can be recognised which might be based around small industry groups or groups of co-located enterprises in rural/regional areas that in some instances may have limited economic significance on a regional or national scale. Defining clusters in this way recognises they can be used as a means of identifying and understanding micro-clusters.

3.2.2 The Theory

Clusters, though not labelled as such, have been part of the economic landscape since production became geographically concentrated. Analysis of the theory of clusters generally commenced with Marshall and his work on industrial districts. He explains the evolution of industrial districts began in early civilisation when "every place has to depend on its own resources for most of the heavy wares that it consumed" (Marshall, 1910, p. 267). Location and geographic agglomeration of economic activity form part of the development of cluster theory (Hoover, 1975; Martin & Sunley, 2002). Harrison (1991) described the Italian industrial districts in such a way that attracted many of those interested in new economic development approaches, and refocused interest on location, social structures, history and excellence. He traced the development of social embeddedness in production. Porter (1990, 1998) has built upon this understanding and captured the imagination of much of the developed, and more recently developing, world by using clusters as a way to increase the competitiveness of regions or areas of specialisation internationally as a response to globalisation. The evolution from industrial districts to clusters is often discussed in cluster literature and a number of views exist,

most of which are essentially about how and why the geographic concentration of firms can derive economic advantage and increase international competitiveness.

3.2.2.1 Agglomeration and co-location

Agglomeration occurs where the concentration of industry is over and above that which is considered normal in that industry (Devereux, Griffith & Simpson, 1999). In one of the early explorations of patterns of industrial co-location and agglomeration, Weber (1929) proposed three key location factors: transport cost differentials, labour cost differentials and economies of scale.

Understanding the reasons why concentrations of industries or economic activity occurs underlays the discussion of clusters. From the perspective of the firm, this is likely linked to the theory of economies of scale (Feser, 1998; Harrison, 1991). Economies of scale in individual firms are experienced through growth of input/output ratios, increased division of labour and eventual vertical integration. The efficiencies gained are often associated with large firms but are also available to small firms that co-locate (Harrison, 1991; Marshall, 1910). For example, there is evidence that industrial organisation affects agglomeration tendency, with some industries more likely to agglomerate than others. Furthermore, small firms may have a larger agglomerative affect than large firms in that they derive benefit from co-location and that, the more competitive and entrepreneurial the environment is, the greater the growth potential and benefits of agglomeration (Rosenthal & Strange, 1999). Therefore, agglomeration and associated economies of scale may occur differently in different industries, or for different sizes and concentrations of firms.

Smaller firms may co-locate around a large central player to take advantage of spill-overs. This is sometimes seen to initiate cluster development, with the interactions that occur between co-located enterprises going beyond those associated with agglomeration. It is argued that it is the level of this interaction, and not necessarily its economic significance, that impact on productivity (Rosenthal & Strange, 1999). There are a range of platforms for this interaction to occur and these include; vertical integration through, for example, production chains; horizontal or sectorial integration; and lateral integration comprising inter-firm and cross-sector interaction (Rosenfeld, 1997; Verbeek, 1999).

It is acknowledged in the literature that agglomeration links economic and regional development theories. However, according to Scott (2000), it does not fully account for how regional and economic development combines to generate dynamic growth centres; "…regional development is – and to an ever increasing degree – based on competitive advantages that are socially and politically created, and not simply given by nature" (p.18). Furthermore, the degree of spill-over in economic activity and the resultant vitality of agglomerations is related to their ability to take advantage of networking and clustering (Isaksen, 1996).

3.2.2.2 Networks

The organisational arrangements of networking and collaboration within the Australian wine industry have assisted it to succeed in global markets (Marsh & Shaw, 2000). However, Chapman (2000) argues that the apparent over-emphasis on exporting in regional development can be damaging to network linkages at the local level. Networks are often primarily concerned with linkages between local firms that produce outputs used by other local firms – supply chain linkages – and Chapman suggests that input/output relationships play an important a role in the success of networking. In the tourism industry, active networks exist and represent not only inter-organisational relationships and information exchange (Johnson, 1998) but relationships between goods and service providers and tourists (Hall et al., 1998).

Networks and clusters are linked (Chapman, 2000; Feser, 1998; Ffowcs-Williams, 2000; Rosenfeld, 1997) in as much as networks may be the essence of functioning clusters (Marceau, 1997). In this study, a distinction between networks and clusters is made. The most significant difference between them is that networks can occur among geographically disparate firms situated anywhere, whereas clusters refer to location specific characteristics and may coincide more closely with regional, state or national government development agendas (Chapman, 2000).

This argument is not one proposed by all cluster studies; for example, Feser (1998) describes networks as economic clusters which are made of linked firms through input/output relationships and not dependent on location. Enright (1998) essentially excluded networks relationships in his classification of clusters. Alternatively, Porter (1998) brings clusters and networks together, stating that "a cluster is a form of network that occurs within a geographic location, in which the proximity of firms and institutions ensures certain forms of commonality and increases the frequency and impact of interaction" (p. 226). This suggests that clusters have

moved beyond simple hierarchical networks to become characterised by numerous types and levels of interaction between firms, individuals and institutions, and that these need not be formal or orchestrated. Such interactions provide opportunities for knowledge sharing, innovation and cluster dynamism.

Networks and clusters differ because of competitiveness operating alongside collaboration. Some of the distinctions commonly reported in the literature between clusters and networks are provided in Table 3.1.

Table.3.1 Differences between networks and clusters

Networks	Clusters
Networks allow firms access to specialised services at lower costs	Clusters attract needed specialised services to a region
Networks have restricted membership	Clusters have open membership
Networks are based on contractual agreement	Clusters are based on social values that foster trust and encourage reciprocity
Networks make it easier for firms to make complex products	Clusters generate demand for other firms with a variety of similar and related capacities
Networks are based on cooperation	Clusters take both cooperation and competition
Networks have common business goals	Clusters have collective visions

From Rosenfeld (1996b, p.16)

This table describes clusters as incorporating social capital and trust, and having drawing power, open membership, co-operation and competition, and collective vision; key features not necessarily present in networks.

An outcome of the distinctions between networks and clusters is that tangible economic factors and formal alliances associated with networks have been expanded to include intangible assets of clusters, such as informal inter-relationship, competitive co-operation and collective vision. This in turn enables a deeper understanding of the complexity of regional economic development and regional growth (Harrison, 1991; Porter, 1998; Rosenfeld, 1997). The role social capital plays within business communities is important to those who see networks as integral components of clusters (Coleman, 1990; Ffowcs-Williams, 1997). As Porter (1998) argues, “functioning clusters move beyond hierarchical networks to become lattices of numerous overlapping and fluid connections among individuals, firms and institutions” (p. 226).

3.2.2.3 Social structure

According to Harrison (1991), regional economic growth is based on the sum of geographic proximity, experience, trust and collaboration. It is also argued by Rosenfeld (1997) that the embedding of economic thinking within a deeper social context can provide an additional dynamic force powerful enough to create *co-operative competition*. Linking geographic co-location, networks and social capital to the understanding of regional development and competitiveness has enhanced discussion on the phenomenon of clusters.

Porter (1998) contends that "social glue binds clusters together" (p. 225) and this contributes to value creation. Many of the advantages of clusters referred to in the literature depend on the flow of information, willingness of firms to work together and a joint motivation for improvement. These social structures of clusters might be referred to as social capital, which is commonly defined as the ability of people to work together for some common purpose (Coleman, 1988). Porter (1998) states that "cluster theory also provides a way to connect theories of networks, social capital and economic" (p. 227). The notion of social capital as an asset that contributes to local wealth is recognised by a number of those involved in the study of regional development and clusters (Rosenfeld, 2002a; Staber, 1996). An important factor in the literature of social capital is the fostering of trust. The significance of relationships and trust in influencing how co-located enterprises function is now recognised as one of the foundations of successful cluster development. Cluster theory may help identify whether clusters arise because of strong relationships or trust, or whether these characteristics occur through the development of clusters (Porter, 1998).

It is not surprising that clusters and regional economic development are becoming intrinsically linked in much of the developed world. The concept of clusters is changing the way we analyse, value and promote a region's development opportunities. The growth in this approach in Australia is most recently seen in Victoria which has established a cluster working group. Through the preparation of a discussion paper (Ammirato et al., 2003); this state is initiating state-wide cluster development programs in areas such as biotechnology, agriculture and alternative energy.

3.2.2.4 Clusters and evolution

A cluster is not just about the importance of location and the importance of resources but is also concerned with the development of dynamic relationships that may create new resources.

Because this study involves wine and tourism enterprises and how they concentrate and interact in distinct regions that have both location and resources assets which effect their productive activities, it is important also to understand the role of economic geography and processes and patterns that might occur in a particular economic environment (Barlow & Newton, 1971).

As understanding of regional economic environments has expanded, theories based around concepts of evolution have emerged. Nelson (1982) refers to the evolutionary theory of economic change and Bryant and Wells (1998, p.2) use terms such as "evolutionary economics" and a "systems approach to innovation" in their discussion of a new economic paradigm.

Clusters, together with other developing theories, recognise a need to understand the complex inter-relationships that exist and evolve within a more holistic understanding of regional economies. Though not a new approach, there seems a propensity to adopt biological terms and concepts to describe these economic theories. Marshall (1910, p.xiv) referred to the "mecca" of economics as being in the realms of economic biology rather than in the mechanics of economics.

Kauffman (1995) relates the economic system to that of an ecological system in order to better understand what economists' term complementarity. Furthermore, he uses the concept of a co-evolving economic web to explain both complements in production and consumption and their substitutes. Kauffman suggests that economists have difficulty building theory about such patterns and it is these patterns that create new economic niches.

Understanding complex situation in economics through evolutionary theories in economics (Bryant & Wells, 1998a; Dosi & Nelson, 1994; Kauffman, 1995; Nelson & Winter, 1982) or the development of economic theory using clusters (Feser & Bergman, 2000; Porter, 1990; Rosenfeld, 1995) may have, in some ways, begun to converge. These two approaches to understanding regional economic development, to some degree, reflect a change in economic thinking that attempts to understand the complexity of interaction between components of the economic, geographic and social aspects of a region's economic situation. This may provide an insight into the development of opportunity or potential within a regional economic landscape. This thinking has perhaps paved the way for economic theories to reflect a more dynamic and evolving process that looks at the reasons for industry or enterprises to co-locate, interact and develop new and dynamic niche opportunities.

This study interprets clusters and how they interact in a way which allows them to be applied to small regional industries described as micro-clusters, which may complement each other, and through this develop new niche enterprises or clusters. These research areas, however, are not well developed in the literature (Austrain, 2000; Benneworth & Charles, 2001; Porter, 1998; Rosenfeld, 1996b).

The following sections describe some of the policy approaches to cluster development and outline a number of cluster models and methodologies, drawing particular attention to those that will assist in the development of a framework that can be applied to micro-clusters and their complementarity in the context of this study. This framework is described in Chapter Four.

3.2.3 Policy

Clusters are increasingly used as a policy tool for regional development, to combat globalisation, to counter rural/regional economic decline and to increase international competitiveness and recognition. Porter (1998) argues that clusters do not normally occur through chance events alone but also depend on the influences of location and whether the industries or firms can be competitive. As a consequence, Porter regards an appropriate approach toward cluster development is to build on "existing emerging fields that have passed the market test" (p. 240). In many parts of the world, the combination of cluster approaches and policy development have been influenced by Porter's work. His approach requires governments to identify and map the clusters; however, the methods of mapping clusters vary depending on the types of data available and the intent of the mapping process. At the national level, the approach is often a top-down one. This involves national mapping exercises using selected types of data, in many cases input/output data, on an industry by industry basis or by particular locations of specialised activity; for example, Silicon Valley or the Californian wine industry.

As yet, little work has been done to collate the different cluster policies that have been adopted internationally. However, Roelandt and den Hertog (1999) have identified a number of policies that have been used in different countries that have developed largely in response to market failures (Table 3.2). This table suggests that cluster policy is developed often in response to specific, and mostly local, market conditions.

Table 3.2 Cluster-based responses to systemic market failure

Systemic and market failure	Policy response	Countries adopting cluster-based policy approaches
Inefficient markets	*Competition policy and regulatory reform	*most countries
Informational failure	*Technology foresight *Strategic market information and cluster studies	*Netherlands, Sweden *Canada, Denmark, Finland, Netherlands, US
Limited interaction between actors in innovation system	*Broker/network agencies/schemes *Provision of platform for constructive dialogue *Facilitating cooperation in networks	*Australia, Denmark, Netherlands*Austria, Denmark, Finland, Germany, Netherlands, Sweden, UK, US *Belgium, Finland, Netherlands, UK, US
Institutional mismatch between (public) knowledge infrastructure and market	*Joint industry-research centres of excellence *Facilitating joint industry-research cooperation *Human capital development *Technology transfer programs	* Belgium, Denmark, Finland, Netherlands, Spain, Sweden Switzerland * Finland, Spain, Sweden *Denmark, Sweden *Spain, Switzerland
Missing demanding customer	*Public procurement	*Austria, Denmark, Netherlands, Sweden
Government failure	*Privatisation *Rationalise business *Horizontal policy making *Public consultancy *Reduce government interference	*Most countries *Canada *Canada, Denmark, Finland *Canada, Netherlands *Canada, UK, US

Adapted from Roelandt and den Hertog (1999) in (Anderson, Schwaag Serger, Sovak & Hansson, 2004, p.62)

Comparing these findings of Roelandt and den Hertog (1999) with those of described by Anderson et al, (2004), a range of cluster policy types can be identified. These policies are more distinct than the broader cluster initiatives that are more commonly referred to (Fforwc-Williams; 2000, Rosenfeld, 2002b). These more specific policies include:

- Broker policies – to enable value-enhancing dialogue and collaboration beyond that which should otherwise occur.
- Demand-side policies – pooling resources to reach markets more effectively – e.g. public policy and public procurement.
- International linkages.
- Training policies – upgrading skills and competencies. These policies are often targeted at small to medium enterprises catalysing inter-firm networks.

- Framework policies – target macro-economic stability, product markets, factor markets, infrastructure and social capital. These are broader conditions and influence the success of clusters, and the shaping of these may be beyond the domain of cluster policies.

It is commonly agreed that no single policy can be applied in all cases. Rosenfeld (2002c) clearly demonstrates that cluster policy needs to be flexible and "to apply clusters to policy, one must believe that they are the rule rather than the exception" (Rosenfeld, 2001a, p. 6)

3.2.4 Models and Methodologies

Cluster models become more complex and progress from essentially agglomeration models (Chapman 2000; Devereux et al., 1999; Feser & Bergman, 2000; Marshall, 1910), through industry integration models (Held, 1996; Porter, 1990), network models (Ffowcs-Williams, 2000; Rosenfeld, 1997), policy driven development models (Boekholt & Thuriaux, 1999; Jacobs & De Man, 1996), relationship models (Roelandt & Hertog, 1999) and innovation models (Verbeek, 1999). However, the literature provides little evidence of models that reflect relationships between clusters (Austrian, 2000).

Feser and Bergman (2000) identified two types of cluster model which depended on either industry or location. Industry clusters have no spatial geographic relationship, whereas regional clusters exhibit spatial agglomeration. The distinction between agglomerations and clusters should be noted; businesses can agglomerate but this may not result in cluster formation (Devereux et al., 1999).

Further development of cluster models reflects the integration of industries within a region. Held (1996) refers to vertically integrated clusters with developed buyer/supplier linkages, horizontal clusters which share a common resource base, and emerging clusters where linkages between players are plausible but not currently well developed.

Porter (1990) uses clusters as one of a number of concepts included in his diamond model of locational competitive advantage. This model has been widely used in cluster studies to determine the role of competitiveness and how related and supporting industries can influence this. In this model, clusters affect competition in three ways: by increasing productivity of firms

and industries, increasing innovative capacity and productivity growth, and stimulating new business that support innovation.

Swann et al., (1998) propose a cluster model where knowledge is a key factor. This model of clustering is based on the generation of dynamic capabilities created by the co-location of like firms that over time outweigh the static and natural resource advantage of an industry cluster. Critically, these authors propose that because knowledge development and spill-overs are what creates dynamic capability, narrow clusters grow more quickly than broad clusters. However, in the face of a changing selection environment, they are more fragile, can become more congested, and decay at a faster rate.

Although Swann et al., (1998) identify knowledge creation, adoption and diffusion as a critical issue in cluster development; they fail to explain how it occurs. However, in the knowledge management literature, a number of studies have mapped out the knowledge creation process. In particular, Leonard-Barton (1996), in her work on the growth of steel mini-mills, identifies the need for an infrastructure of physical/technical systems, socio-organisational systems and core values and attitudes to be in place for knowledge creating activities to be productive. These factors provide a context of trust, goal congruence and effective processes that enable technical innovation to progress.

Verbeek (1999) identifies two distinct cluster types based on regionally similarity or on interdependency, and categorises cluster models accordingly. Similarity based clusters are more the standardised models, which are based on similarity of production and are often industry or sector driven, linking sectors into mega-clusters. The cluster mapping approach proposed by Porter (1998) is an example of this type of model, which is generally export focused and develops national cluster charts that identify industries that have export success. The second approach includes interdependency based models, which has come out of innovation systems research. This approach has been largely driven through the OECD national systems innovation (globalisation) cluster model. An advantage of this type of model is that it offers insight into what defines the cluster as well as who the actors are, and what relationships exist between them (Roelandt & Hertog, 1999). Though this approach moves away from purely sectorial clusters to include cluster relationships, it again relies on sufficient statistical data bases to identify and map these clusters.

Verbeek's (1999) makes the observation that cluster models should reflect the nature of the study, and that research on, for example, a regional textile cluster should adopt a sectorial approach based on a similarity industrial district approach. Alternatively, research on national systems of innovation, a value adding production chain approach based on interdependencies would be more appropriate.

Other authors have observed that clusters change over time, and have sought to construct typologies that incorporate the clustering process. The Rosenfeld (1996b) model distinguishes three types of clusters based on the intensity of interaction between firms within and outside the region, and the strength of social infrastructure. He uses the following terms to describe these:

- *Working* clusters – overachieving clusters are highly interconnected, and together produce more than the sum of their individual parts.
- *Latent* clusters – underachieving clusters are where the scale and opportunity for effective clustering exists but is not fully developed.
- *Potential* clusters – have some key conditions but lack some inputs and critical mass.

Rosenfeld (1997, p.11) makes particular reference to clusters in rural areas which often fall into the category of *wannabe* clusters because of a lack of political power, critical mass, or comparative concentrations to be noticed.. These are types of clusters that may not be recognised in more traditional cluster studies. Enright (2000b) also uses a similar description but refers to them as *wishful thinking* clusters and suggests they should not be considered as clusters. He has recently included another cluster type, referred to as *policy driven* clusters because these are the ones that are "chosen by governments for support, but which lack a critical mass of firms or favourable conditions of organic development" (p. 12).

In practice, most firms, as a consequence of co-location with other like firms, would have some horizontal and vertical co-operation of competitive behaviours. Martin and Sunley (2002) suggest that this being the case, virtually all geographically proximate firms could be considered part of a *potential* cluster. This is perhaps what Rosenfeld is reflecting in his cluster classifications.

Rosenfeld (1997) suggests that few traditional cluster models capture and describe the underlying dynamics of the cluster. Conventional data, such as number of firms, employees,

resources, is an inadequate measure and cannot identify a *working* cluster from a group of firms. Equally important is the *circuitry* of the system – information flow, innovation, skills, and people – embedded in social infrastructure that fosters trust and interaction. This is succinctly put by Rosenfeld (1997) when he suggests that "in a cluster the social ecology is as important as the agglomeration economies" (p.9).

By shifting the emphasis from sectors, numbers of employees and economic significance, to information exchange and interaction between actors, social capital becomes firmly embedded into the mainstreams of economic policy, and the economic size of the cluster becomes less important (Rosenfeld, 1996b). Clusters may therefore exist without having national or regional economic significance.

The cluster models adopted by these scholars are important because they provide cluster descriptors that can be used to identify clusters under a wide range of situations. It is important that the concept of clusters not be restricted by definition or models as this will reduce ability to use the phenomena observed when firms co-locate and interact. Clusters may form as a consequence of a range of stimuli, which might include policy initiatives, chance or organic cluster growth. It is from this base that this study approaches clusters, and the framework and methodology used in this study have been developed.

3.3 Clusters and the Process of Clustering

The distinction between clusters and the process of clustering has recently been acknowledged by some authors (Benneworth & Charles, 2001; Rosenfeld, 2001b), but it has not been the focus of cluster research. Benneworth and Charles note that certain cluster models need to recognise and document interaction and processes that occur within the cluster. This is particularly relevant in the context of potential or emerging clusters where, "if the process is successful, over time the system may achieve the scale to be recognised as a 'cluster'…"(Rosenfeld, 2001b, p.17).

If clusters are to be used to understand regional economies and interpret their comparative strengths, the cluster model applied needs to recognise the dynamism of the process of clustering (Benneworth & Charles, 2001). It is also important to understand that these processes can change the type of cluster. It is in this light that the concepts of a cluster continuum (Brown, P., 1999) and cluster life cycles (Rosenfeld, 1997) become relevant.

3.3.1 Cluster Continuum

Rosenfeld (1997) suggests that clusters, like products, have life cycles and regions, like companies, must recognise the changes that mark the end or beginning of these cycles. The cluster continuum model described in Brown's thesis illustrates that "…the inception and development of clusters can be traced by the degree of networking and dynamism that exits within the cluster…"(Brown, P.,1999, p. 62). The importance of cluster processes and the realisation that clusters are not static are relevant to this study.

Identifying a cluster's position on a continuum means cluster dynamism needs to be measured; however, this is problematic given the intangible nature of many aspects of this dynamism. The literature does not reveal a widely accepted methodology for addressing this situation. As a consequence, cluster models have not been well tested in this regard, and it is partially for this reason that questions are being asked regarding the wide adoption of cluster theory as an appropriate tool for capturing and enhancing regional economic development. It is recognised and reported in the literature that clusters do not necessarily produce desirable outcomes, and that there are risks associated with certain cluster developments (Doeringer &Terkla, 1995; Fritz, Mahringer, & Valderrama, 1998; Tichy, 1998). The realisation that life cycle stages can occur in clusters has opened the door to a reassessment of the implications of certain cluster scenarios. One such scenario results from localised cluster specialisation which can effectively reduce regional economic diversity, and hence reduce the depth and breadth of the regional economy. The danger here is particularly apparent in more fragile regional economies that have placed considerable emphasis on clusters that have been transplanted into a region.

3.3.2 Cluster Process and Economic Development

An additional element to consider in this discussion is that there has been little assessment as to whether there are in fact contributory links between the processes of clustering and economic

development in regional Australia (Lowe & Miller, 2001). This may be because regional cluster models are traditionally based around location, and with no two locations being the same, there may be little value comparing one regional development process with another (Lowe & Miller, 2001). This apparent scepticism regarding clustering, particularly in Australia, may be largely due to shortfalls in research into the clustering process in regional Australia (Enright & Roberts, 2001) where there has been little evidence provided to support the benefit or otherwise of clusters. It may also reflect the initial purpose for adopting clusters models particularly in regional Australia, which was primarily to avert declining rural and regional economies. Consequently, many regional clusters in Australia are based in essentially rural areas where opportunities for cluster development are limited.

It may be that many rural regional clusters in Australia fall into the *wannabe* cluster category because of a lack of political power, critical mass or comparative concentration (Rosenfeld, 1997). Or it may be that key cluster assumptions, such as being a strong industry network with industry representation greater than the state or national average, or being an export industry, may not apply (Chapman, 2000). In addition, the difficulty in identifying typical forms of rural clusters by using standard data sources and traditional cluster methodologies suggests that another approach is required. Such an approach would recognise that connections between businesses in smaller or more remote regions may take on different forms, with greater significance being placed on collective interactions or processes which may not be directly related to a particular industry or business (Rosenfeld, 1997). The following discussion of cluster methodologies draws particular attention to the application of clusters in these circumstances.

3.3.3 Cluster Process Methodology

Methodologies that consider processes as integral to cluster identification are not well documented in the research literature. It is from the practitioner's perspective that these methodologies have largely been developed. As previously indicated, most national and regional cluster identification methodologies rely on statistically based cluster analysis using industry structure and classification data derived from official census data (Murphy et al., 1997; Verbeek, 1999). However, this approach has limited application for small rural regional micro-clusters or fragmented clusters, where this data is not available.

There is evidence in the literature that combining both quantitative and qualitative data provides a useful framework for the development of a methodology for cluster identification and analysis (Held, 1996; Austrian, 2000). This methodology will capture the richness and complexity of these small regional micro-clusters that can be built on the strength of their clustering processes and not necessarily their economic significance.

Recent literature addressing the process of clustering in Australia does provide some pertinent approaches for cluster development which includes setting up cluster networks that may involve the establishment of specialised institutions or infrastructure (Enright & Roberts, 2001; Murphy et al., 1997). An example of one such approach is the South Australian Business Vision 2010 industry cluster development program (Blandy, 2001). This approach is built around harnessing collaborative instincts and driving economic and social outcomes, and has been used successfully in regions in Australia – for example the Hunter Valley (Sinclair, 1999) – and in New Zealand (Ffowcs-Williams, 1998). These methodological approaches have recognised that clusters evolve and any methodology needs to consider the cluster development process as part of a more complex system.

Furthermore, Enright (2000a) and Ffowcs-Williams (2000) suggest the methodological approaches should be based on cluster strategies rather than focusing on identification or processes. They identify three different cluster strategies that require separate methodological approaches:

- Organic cluster strategies where the methodology should be directed to the expansion and deepening of the existing economic base
- Transplant cluster strategies which are designed to attract new foreign firms
- Hybrid cluster strategies which are essentially a combination of the two.

However, for each of these approaches, the key constraints and key factors that could be used as leverage to develop organic clusters or attract new cluster participants need to be identified through in-depth analysis and characterisation of the dimensions of clusters (Enright, 2000a) and the processes that are active within the clusters. The optimum approach adopted for cluster research will, according to Enright and Ffowcs-Williams (2000, p.19), "depend on the present economic base and institutional capacity found in the locality or region in question" to be able to research, develop and support these region's clusters effectively.

The methodologies described by Austrian (2000) and Rosenfeld (1995) make particular reference to bottom-up approaches. Rosenfeld (1995) frames his methodology toward an understanding of the rural economy and in the process of identifying clusters – "much like assembling a jigsaw puzzle with some of the pieces missing" (p. 43). This methodology describes and measures:

- Industry concentration and relationships
- Nature of regional economies
- Firm relationships within a region.

This discussion has drawn from a wider understanding of clusters, those aspects of clusters and the processes of clustering that focus on understanding and building from an existing economic base, which in turn leads a region to build upon its unique attributes. This approach, rather than those based on standardised industry classification methodologies, reflects a bottom-up methodology similar to an organic cluster strategy.

3.3.4 Applying Clusters

A survey of the literature indicates there is little doubt that cluster methodologies are diverse and are directed by particular objectives, but there is no reason to be sceptical about their respective validity. A cluster can be analysed as a national, regional or local developmental process. This can be achieved by using statistical, non statistical, qualitative or quantitative approaches, case studies, interviews and survey data, sophisticated computer modelling, or indeed by intuitive means (Brown, R. 1999; Devereux et al., 1999). Reflecting the diversity of cluster theory and application, to be restricted by a single methodological approach would be limiting the application of clusters. In this study in particular, adhering to predetermined cluster methodologies would mean that these regional industries would fall through traditional cluster analysis, and therefore the ability to apply cluster theory in these circumstances would be overlooked.

Given that clusters can represent a wide range of situations, their popularity has continued to expand as an economic development tool in many parts of the developed, and more recently, developing parts of the world. There are a number of common elements of clusters that emerge

from the scholarly literature and from its use in economic development situations. These elements are derived from economic geography and agglomerations, the implications of co-location, economic imperatives and the importance of networks and social linkages. These are enacted through knowledge exchange and lead to consumer-supplier relationships, initiating a convergence in business providers to the cluster. Capital is attracted as are more customers, and a resultant synergy between actors develops where one provides the impetus for the other to advance the cluster. It is therefore not until a cluster can demonstrate certain processes that it can be described as actively clustering. A cluster can be a quantifiable static entity, but the process of clustering concerns relationships, synergies and the exchange of information and these processes are not easily quantified.

In this study, the processes of clustering become the focus for a number of reasons. These are primarily to do with the nature of the industries being studied and their size in the regional context. It is important that cluster studies do not become too restrictive in their interpretation and application because there are aspects of this phenomenon that may be demonstrated in less conventional ways. The interaction between clusters, their overlap or complementarity can be an approach that facilitates an understanding of how co-located clusters impact on each other geographically, economically and socially.

3.4 Regional Micro-Clusters and Cluster Overlap

Rosenfeld (1996b, 1997, 2001b, 2002a), a key researcher addressing regional and rural clusters, contends that cluster models based on regional economic significance and size may not recognise the existence of small rural/regional clusters. It is the rate of activity, rather than the extent, concentration or quantity of output that identifies the effectiveness of a cluster. Rosenfeld (1996b) suggests "an effective cluster embodies groups of firms that frequently meet, interact and conduct business; and that have developed high levels of mutual trust, hold a shared vision and learn from each other – all of which produce dynamism and synergy" (p.15).

In the rural and regional context, cluster methodologies need to be responsive to the particular characteristics of their locations. By recognizing *wannabe* clusters and applying a bottom-up methodology, an in-depth analysis of clusters can be achieved. Rosenfeld (2002c) puts this

clearly when he suggests there may be clusters that are not easily found without expanding the catchment area to include surrounding areas and looking for connections between clusters in these areas. It is this approach to cluster recognition that is being explored in this study, using regional wine and tourism clusters as exemplars.

The significance of the relationship between clusters is of particular interest in this approach, and has been identified by Porter (1998) as such. To be able to capture the significance of this cluster overlap, particularly in the context of rural and regional micro clusters, requires the consideration of less obvious cluster commonalities. It also requires recognition of more generic needs and clusters that lack the scale to be identified through more traditional means but represent unique local competencies.

Viewing clusters from this perspective, their application can be justifiably expanded. This may require a shift in cluster focus, from the central theme being some commonality of production process to one related to knowledge, innovation, overlap and complementarity. This provides an opportunity to open up new possibilities for generating externalities and collective actions on a regional scale, which may depend on cross cluster interactivity or overlap. In recent years, a number of cluster case studies in rural areas have appeared in the literature and these have demonstrated clusters as an economic development tool (Porter et al., 2004; Rosenfeld, 2001b). However, there are few published examples where this broadening in cluster studies and analysis has impacted on cluster recognition in rural regional areas. There are several issues that arise as a consequence of this lack of research, particularly in areas where it is seemingly assumed that cluster overlap alone will generate vibrancy and lead to complementarity. For clusters to overlap it requires that each cluster plays a part in this overlap. Porter (2003), through using cluster overlap at the macro-scale, posits that cluster overlap can only be active if both clusters share 20% of the same industries. This has important implications for how cluster overlap is interpreted in this study.

Cluster overlap in the micro context, when considering two co-located clusters that may share resources, adapts the Porter overlap scenario and broadens it to consider overlap as being measured by clusters undertaking the same or similar activities and by actively being engaged in the co-located cluster industry. It is from this perspective that cluster overlap is defined in this study to mean the common characteristics of the clusters which include common membership of industry organisations or undertaking the same types of activities.

The complementarity of co-located clusters is primarily framed within the marketing of products and activities (Porter, 1998). The interpretation of complementarity in this study within the context of micro clusters opens up new and more diverse literature. It is possibly the most commonly recognised form of complementarity when products complement each other. The following example, provided by Porter (1998) when he described product complementarity in tourism, provides some clarity to this notion. In tourism, the quality of a visitor's experience depends not only on the appeal of the primary attraction (for example, beaches or historical sites) but also on the comfort and service of area hotels, restaurants, souvenir outlets, airport and other transport facilities, and so on. As this example illustrates, "the parts of the cluster are often truly mutually dependent" (Porter, 1998, p. 217). This explanation demonstrates that cluster complementarity can be the result of vertical or supply chain activity, horizontal or across industry or sectors, and also includes perception and experience which are non-tangible aspects of tourism clusters.

Marketing provides a form of complementarity within clusters (Porter, 1998) and arguably, in this study, between clusters. Identifying key complementarities, that may be significant in the relationships within clusters and between co-located clusters, draws primarily from the marketing literature. Porter describes marketing benefits as complementarities. He suggests that firms within clusters develop complementary activities across products and markets. In the wine and tourism regions, co-location and complementarity provides for better destination marketing or product branding and creates opportunity for joint marketing and reputation enhancement. P. Brown (1999) labelled these complementarities as *market externalities* and placed them within his cluster continuum framework.

Stern (2004) refers to complementarity in terms of substitution or elasticity, where complementary products can raise marginal costs of another inputs. These interpretations do not provide any definitive definition of complementarity; they are essentially based on an individual product and are not concerned with complementarity of activities. The use that Porter (1998) makes of the term is more relevant to this study. He interprets complementarity as a means of facilitating activity between participants in a cluster. These complementarities can be among products, across products, through marketing, and through better alignment of activities within the cluster. In this study, both inter-cluster complementarities, such as those described by Porter, as well as intra- or between cluster activities whereby a cluster adds to the activity, product or market of the co-located cluster, are considered.

In light of this discussion, applying cluster theory to small regional wine and tourism industries requires a refocusing of the interpretation of more traditional cluster theory. It may be argued that this change could provide an opportunity to understand better the ways in which these industries interact geographically, economically and through social capital interdependencies. The potential for overlap and complementarity between these co-located industry clusters allows this research to explore the role of clustering from this unique perspective, where the benefits of clustering may be reflected in the ability of these clusters to complement each other even if their own cluster is underdeveloped.

Within the wine and tourism literature, cluster research has identified the peculiarities in how they might relate to one another, and this provides an insight into an area of research which has not been well developed. For example, the work on the Californian wine cluster (Alexander et al., 1997; Porter, 1998) does recognise some relationship between the wine cluster and the tourism and agricultural clusters, but the nature of this relationship is not explored (Austrian, 2000).

Some cluster research has identified industry overlap in clusters. Heath (1998) uses the Ottawa high technology cluster to illustrate that several industry sectors overlap in this cluster and the intersection allows firms to move from one core sector to other kinds of activities. In his study, Heath indicates that this has created new companies that have been able to exploit emerging niches. This research is of interest but provides little evidence of which, if any, cluster dimensions or relationships are important in this process.

It is the inter- and intra-cluster relationships that are of particular relevance when discussing how micro-clusters can develop, and may also be integral to whether the interaction between two industry clusters results in cluster overlap. This has particular relevance when considering a co-located wine and a tourism industry cluster where niche markets or innovation may be developed and grow the respective clusters. The flow of knowledge (Smith, K., 1998) and competency transfer from one industry cluster to another (Heath, 1998; Verbeek, 1999) may prove to be the consequence of such an overlap, thus providing scope for the growth of both regional industries. The significance of overlap in this process has not been tested and this is one aspect of clustering that will be explored in this study.

3.5 Chapter Summary

In this chapter, a discussion of clusters began with their evolution from economic theories on agglomeration and co-location to issues relating to the process of clustering. The discussion of a range of cluster interpretations, applications and methodologies concluded that cluster definition and methodologies should remain flexible to ensure that this phenomenon can be used to explore a wide range of situations.

The chapter places this literature into the context of this study. It defines a cluster in a broad sense to simply represent a group of businesses that, because of their co-location and relationships, generates some synergy and this synergy need not be dependent on the size of enterprise or the scale of activity within the region. The chapter also suggests that clusters, and the processes associated with them, provide a powerful tool to understand how businesses interact, compete and innovate to gain advantages to grow their businesses.

A diversity of cluster models and methodologies has been discussed with particular reference to those that are relevant to the study of regional micro-clusters. The chapter identifies there are that aspects of clusters, when defined in a broad sense, that are relevant to understanding small-scale cluster activity in a rural/regional setting and in a range of industry types. Of particular importance in these situations are inter-relationships within and between co-located clusters. However, there is difficulty in identifying and measuring these within the confines of traditional cluster analysis. Established methodologies are not geared to measure cluster overlap and intra-cluster complementarity. This means that assumptions about how overlap and complementarity are measured are not clearly defined in the literature. This study explores these aspects of cluster analysis to provide insight into their applicability in situations where micro-clusters may complement or overlap with other co-located clusters.

In so doing, this chapter has described methods for classifying types of clusters, and has indicated that clusters are not static but are positioned on a continuum which reflects a cluster lifecycle. The conclusion reached is that small clusters that occur in regional areas may need to be viewed differently to clusters at a national or industry level. Consequently, this study uses the concept of micro-clusters, the process of clustering and the relationships between clusters in the

form of cluster complementary and overlap as a way to determine how co-located business activities interact with each other and the relationships they might have with other businesses and agencies. The discussion of cluster overlap and complementarity provides an opportunity for the synergies between businesses to develop into more vibrant regional clusters than would be possible if more traditional approaches to cluster research were adopted.

In the next chapter, this interpretation of clusters is developed to provide a framework that will form the basis of this study. This framework, though developed for the explicit purpose of this study, may add some insight into other studies into regional clusters that may share some complementarity or overlap in resources or activity.

Chapter Four A Framework

4.1 Introduction

This study will answer a number of questions about how regional wine and tourism businesses interact with one another, and what factors influence the level and form of this interaction both within an industry sector and between industry sectors. Using clusters as the foundation for the study, an organisational framework is developed that reflects competitive and collaborative aspects of industrial organisation, the social structure of clusters that underpins their core processes and specific features associated with region and industry type.

This framework goes beyond classifying a cluster type to include what happens when clusters overlap or complement each other, whilst recognising the distinctive characteristics of small and underdeveloped clusters. As a result, the framework in this study is used to analyse clusters and the processes of clustering from the perspective of co-located wine and tourism enterprises that exist at various levels of development.

This chapter proposes a definition of a cluster where; cluster membership may be weak or strong, cluster participants may be limited or extensive and cluster scope may be broad or narrow, and the framework forms the basis for data collection and cluster classification. The chapter discusses the rationale for using a framework (Section 4.2), identifies clusters (Section 4.3) and describes the elements and dimensions of clusters considered in the study (Section 4.4). In Section 4.5 cluster classifications used in this study are described and in Section 4.6 cluster overlap and complementarity are positioned within the study. The framework can be used to develop an understanding of the interaction of wine and tourism clusters, and Section 4.7 summarises this organisational framework developed for the remainder of this study. The final section of this chapter positions the framework within the broader study of clusters.

4.2 The Rationale

The research literature tends to focus attention on mature and internationally competitive clusters. Industries within the rural sector and the broadly based and fragmented tourism industry are sometimes seen as residual cluster sectors with limited growth potential (Rosenfeld, 2001a). Consequently, these clusters may depend on a range of criteria for their classification. As Rosenfeld identifies, a framework that allows a broader set of interdependencies and commonalities to be identified is needed before these small regional clusters can be identified and studied.

Furthermore, developing, rather than developed, clusters require multiple types and levels of analysis, and possibly a broader framework of analysis than is required in mature cluster studies. A multi-disciplinary and multi-level approach may be applicable in this situation. There are a range of triggers for cluster development and these include factors such as climate or natural resource endowments, infrastructure, key businesses or people, history or chance. Because of this, a cluster is a useful way to explore and understand cross sector overlap and complementarity.

Research may use a number of organising forms including frameworks, theories and models (Ostrom & Ostrom, 2004). In the cluster literature, cluster maps are used extensively to describe locational and relational factors. These maps are used as a tool to provide a level of data and relationship representation specific to a study, industry or regional economy (Porter, 1998).

In this study, a framework approach is used. Porter suggests that in framework building "the artistry is in providing the smallest number of core elements that still capture the variation and dimensionality of competition. And these dimensions then have to be intuitively grounded" (Porter in Argyres & McGahan, 2002, p.46). The key advantage of a framework in this study is that it identifies core cluster elements and captures a range of dimensions that contribute to a cluster classification. The framework also allows the processes that are important in the clusters being studies to be identified. To corroborate this approach in this study, a clear distinction between a framework, a map, a theory and a model are be made.

A framework is a means of organising both "diagnostic and prescriptive inquiry" (Ostrom & Ostrom, 2004, p.113). A map is a diagrammatic tool used to represent the differing components and their relationship within a phenomenon – a cluster in this case. It can graphically depict the structure and the relationships that exist and is commonly used as a tool in cluster research (Austrian, 2000). A theory emerges from frameworks and maps that enable the elements of the framework to be specified and linked to particular questions or general working assumptions about the elements. It then allows the diagnosis of a phenomenon, explanation of its processes and prediction of its outcomes (Ostrom & Ostrom, 2004). A number of theories may be compatible with a given framework. The clustering phenomenon has been modelled in a number of ways, all of which are informed by the phenomenon but do not necessarily replicate or capture it fully (Argyres & McGahan, 2002). Identifying and understanding clusters may therefore benefit from a framework approach.

4.3 Cluster Identification

To use clusters as an analytical lens assumes that they are, or can be, an all-encompassing phenomenon or as Rosenfeld (2001b, p.6) notes "one must believe that they are the rule rather than the exception". Hence, this study assumes wine and tourism clusters exist but that their level of development may fall short of inherently competitive clusters featured in the literature (Porter, 1998).

The second assumption required is that clusters and networks might be related, but clusters exhibit certain characteristics that separate them from networks. In clusters, membership is open, businesses are attracted, informal and intangible relationships are valued and, importantly, competition and co-operation are mutually inclusive. Clusters have collective visions, where the benefits to the cluster and to individual businesses have some correlation (Rosenfeld, 1996b).

By assuming that clusters may exist in many forms, the exploration of the cluster process may focus on describing the elements of the cluster rather than to demonstrate its existence. This approach is important because some of the identified elements and subsequent dimensions of a

cluster are measurable but many are less tangible, and measurement, in a quantitative sense, is problematical.

Clusters are complex in terms of process and definitions. But there are parallels in other areas of study that reflect a similar complexity; ecology is one such area and a correlation between understanding the fundamentals of ecology understanding regional economic systems can be made (Ginsberg, 1997; Kauffman, 1995).

4.4 Clusters, Systems and Frameworks

Complex ecological systems have been understood through the application of general systems theory (Bertalanffy, 1972). To understand any complex systems, the identification of elements in that system is a primary step and is part of a general systems theory approach (Van Gigch, 1974). Van Gigch uses the concept of general systems theory to view complexity and interactions within the economic system, and an extension of this approach is complex systems modelling (Ginsberg, Larsen, & Lomi, 1999). Theories based on evolution, co-evolution and ecology have also been used in an attempt to better understand economic development (Kauffman, 1995). The interaction of elements in a system typically gives rise to emergent properties that are often not apparent in the component elements. However, it can result in self-generating properties of business evolution, adaptation, innovation and the development of new business opportunities and, hence, regional development (Ginsberg & Morecroft, 1997; Kauffman, 1995; Porter, 1998). Ginsberg and Morecroft (1997) rationalise this approach by suggesting that "thinking in terms of complex systems means seeing your business as a part of a wider economic ecosystem and environment that evolves over time" (p. 3). Porter (1990, 1998) alludes to this when he describes clusters as occupying "… a more complex and integral role in the modern economy than has previously been recognised" (Porter, 1998 p.208), and "…a system of interconnected firms and institutions whose value as a whole is greater than the sum of the parts" (p. 231). These seemingly related lines of thought suggest that systems and clusters might share some common purpose in describing both regional economies and how industries function in them.

Research that attempts to identify clusters reflecting this systems approach may result in the capture of their intrinsic and dynamic nature independent of industry type or location. Through identification of key elements, their dimensions, interactions and inter-relationships can be described and compared. This approach has formed the foundation of the framework which is contained within a whole systems understanding of regional economies, and is used in this study to capture the aspects of particular clusters that might be overlooked using more traditional approaches.

4.4.1 Cluster Elements

A comparison of the diversity of cluster definitions and approaches throughout the literature, as presented in Chapter Three, indicates that three common elements emerge which form key parts of the framework (Enright, 2000a; Jacobs & De Man, 1996; Rosenfeld, 1997; Verbeek, 1999). Clusters are concerned with:

- geographic elements
- economic elements
- social elements.

These elements vary in significance for different clusters. Some clusters display strong geographic elements, particularity those reliant on natural resources; some have a strong economic foundation, for example, Silicon Valley; others have a dominance of social cohesion, such those often referred to in Italy. When these elements are applied at the micro-clusters level, they facilitate a broadening of the structure and strength to include any one, or most likely a combination, of these elements. This approach adds flexibility to the cluster identification process by recognising clusters that, for example, may not have an economic critical mass but may exhibit strong social cohesion or geographic dependence, with each displaying cluster characteristics.

This study is based on the assumption that all elements are important and integral to cluster development. Understanding these cluster elements in the context of a regional cluster requires an understanding of their constituent parts or dimensions.

4.4.2 Cluster Dimensions

Cluster dimensions have been identified by a number of researchers (Enright, 1993, 1995, 1996; Jacobs & De Man, 1996; Kaufman, Gittell, Merenda, Naumes & Wood, 1994; Storper & Harrison, 1991; Verbeek, 1999). They comprise key features of clusters, with each dimension able to be identified and assessed in the context of specific research agendas.

Two approaches that identify cluster dimensions are used in this study. The first is a menu approach used to define and describe clusters from a business, industry and regional policy perspective (Jacobs & De Man, 1996; Rosenfeld, 2002a; Verbeek, 1999). These dimensions are summarised in Table 4.1 and are based on those identified by Jacobs and De Man. This approach is relevant to this study because it includes intra- and inter-cluster dimensions, therefore providing an opportunity to consider the relationships between co-located wine and tourism clusters. These dimensions locate clusters in the context of regionally concentrated economic activity, production chains and networks or sectors that show high levels of aggregation.

Most clusters reflect more than one of these dimensions, and this multiplicity may provide an indication of the degree of cluster activity or clustering that is occurring within clusters or between clusters. By broadening the dimensions to include intra-cluster relationships, Jacobs and De Man (1996) have noted some aspects of clusters not generally identified. Porter (1998) draws attention to the significance of intra-cluster relationships suggesting that at the intersection of clusters there is opportunity for vibrancy and enthusiasm for new opportunities. This opportunity may stem from the complementarity between clusters and the overlap of clusters, and may prove significant in localised rural development scenarios such as in this study.

Table 4.1 Dimensions for identifying clusters – a menu approach

Cluster	Key features	Industry/sector indicators	Business indicators (Inter-cluster)	Cluster indicators (Intra- cluster)
Geographical	-Spatial co-location -Geographic dependence -Geographic constraint	-Industry geographic -Focus i.e. local industry associations, local support infrastructure	-Positive regional focus -Support regional networks or initiatives	-Interact with other clusters in a geographical or regional context
Horizontal	-Sector classification -Sector aggregation -Cross sector classification	-Sector initiatives -Strategic plans	-Support sector initiatives -Link cooperation and competition	-Learn from other cluster initiatives
Vertical	-Composite of production chains, supply networks and outsourcing networks	-Relationship between suppliers, specialised inputs -Whole system approach to environmental, quality issues	-Interaction between user/producer/supplier -Exchange or share workforce -Co-location production units	-Located near advanced suppliers/clients -Relationships with other client clusters to upgrade products
Lateral	-Linking and sharing related sectors capabilities	-Synergy between sectors	-Synergy between businesses	-Inspiration from other clusters -New combinations of cluster elements
Focal	-Cluster forms around a central actor/firm	-Enhanced interaction between organisations -Staff mobility -Attraction of support industries	-Relationship between focal firm and other firms	-Relationship with other clusters
Technology	-Industries that share related technologies and technological characteristics	-Attraction or interaction with technology based industries	-Developing core competencies individually or co-operatively	-Interaction with other clusters
Knowledge	-Relationship to relevant knowledge infrastructure, education and research	-Attraction or interaction with education and training institutions	-Developing core competencies and skilled labour force, individually or co-operatively	-Interaction with other clusters
Networks	-Co-operation between businesses	-Sector network stimulation -Network management	-Developing partnerships -Coordination between businesses	-Interactions with networks in other clusters

Compiled from Jacobs and De Man (1996)

The second approach, represented in Table 4.2, is a more descriptive one and is based largely on the findings of Enright (1996). The approach stems from a number of leading researchers (Enright, 1993, 1995; Kaufman et al., 1994; Storper & Harrison, 1991). Enright (1996) uses these dimensions, and describes the clusters in terms of their activity level using highly descriptive terminology. He suggests a *sharpening* of analysis techniques for regional clusters are needed, and consideration given to the following dimensions:

- Geographic, meaning territorial extent
- Density, meaning number and economic weight of firms or businesses
- Breadth, referring to the range of horizontally related industries
- Depth, referring to the range of vertically related industries
- Activity base, or number and nature of activities in the value-chain locally derived
- Growth potential, based on product demand and service supply and competitive position of cluster
- Innovative capacity, relevant to competitive advantage
- Industrial organisation, such as governance structure and intra-firm relationships
- Co-ordination mechanisms, based on inter-firm relationships and how they are organised.

Enright (2000a) describes a range of cluster types by their activity level. For example, organic clusters are localised, dense and deep, activity rich clusters which have a propensity for innovation, and draw benefits from the globalisation of economic activity. On the other hand, dispersed, sparse, shallow and activity poor clusters are less embedded in the local economic and social systems, and are less likely to be a source of self sustaining growth. Accordingly, these cluster descriptions fit many of the clusters created through transplant strategies. Enright concludes that in general, local policy should be directed towards helping "localise, deepen, broaden, activity-rich and or improve the innovations capacity of clusters" (p. 321).

Table 4.2 Dimensions for describing clusters – a descriptive approach

Dimension	Scope (Key Feature)	Activity Level	Description
Geographic	Territorial extent of participants	Localised cluster	Tight grouping, small geographic area, single town or district
		Dispersed cluster	Participants spread over wider geographies, regions
Density	Number and economic weight of firms (market share)	Dense cluster	Large number of firms with large volume of total sales
		Sparse clusters	Fewer firms or less substantial firms with lower economic weight
Breadth	Range of horizontally-related industries	Broad clusters	Variety of products in closely related industries
		Narrow clusters	One of a few industries and their supply chains
Depth	Vertically-related industries	Deep clusters	Set of related industries and supply chains
		Shallow clusters	Reliance on inputs from outside region
Activity base	Number and nature of activities in the value-add chain performed locally	Activity-rich	Many or most critical activities in value added chain of relevant industry performed locally
		Activity-poor	One or few activities in a given industry or set of related industries performed locally
Growth potential	Demand for products and services supplied by cluster, competitive position of cluster relative to internal and external competitors, availability of resources for growth (resource base)	Sunrise cluster Competitive Non-competitive	
		Noonday cluster Competitive Non-competitive	
		Sunset cluster Competitive Non-competitive	
Innovative capacity	Ability to generate key innovations that are relevant to competitive advantage	High-innovation	High degree of innovative capacity
		Low-innovation	Low level of innovation
Industrial organisation	Governance structures and relationships among firms in the cluster, including nature of relationship and distribution of power among firms		
Coordination mechanisms	Inter-firm relationships and how they are organised		

Adapted from Enright (1996)

Both of these approaches include a range of dimensions; however, other dimensions important for cluster development have been identified in the literature. K. Smith (1998) argues that, in relation to innovation systems and industrial cluster approaches, the knowledge base and the processes of knowledge transfer should be seen as cluster dimension. The mechanics of a knowledge base are included in network, knowledge and technology dimensions (Enright, 1996; Jacobs & De Man, 1996). However, the mechanisms of knowledge and competency flow between clusters, and the impact this may have on the structure and functioning of clusters has not been well researched (Smith, K., 1998). This study in part explores the relationships and knowledge transfer within clusters and between co-located wine and tourism clusters; therefore, it will contribute to the understanding of the importance of these dimensions in those specific clusters.

In addition, an emphasis on the importance of social structure on cluster development emerging in the literature is largely missing from the dimensions proposed by Enright (1996) and Jacob and De Man (1996). The social element of clusters is of central importance to cluster processes and economic activity is now seen as embedded in ongoing social relationships (Harrison, 1991; Porter, 1998; Rosenfeld, 1997). Dimensions that reflect social structure and social capital are important and consideration of their affect is needed in cluster studies. Trust as a foundation of social capital is recognised as significant to cluster development (Harrison, 1991). A shift in the emphasis from discrete location patterns, numbers of employees and economic significance, to flow rates of information and ideas (knowledge) suggests that social structures and, particularly, trust are valid components of economic policy (Rosenfeld, 1996b), and hence clusters. Both codified knowledge, transferred through educational institutions and other formal means, and tacit knowledge, often gleaned through less formal means, are of comparable importance. It is for these reasons that the dimensions of knowledge flow, collaboration and trust should be considered as cluster dimensions and are placed within the social element of the framework in this study.

There are also situations where historical accident or chance occurrence play a role in cluster development (Porter, 1998; Rosenfeld, 2001b). In addition, life style choice, often evident in the decisions to locate in a particular region, has been shown to play a significant role in cluster development (Brown, P., 1999; Enright, 2000a). These less well documented, and essentially socially based cluster dimensions reflect the social fabric of a region (Harrison, 1991) and are also valid cluster dimensions.

These newly acknowledged cluster dimensions reflect the complexity of the cluster system described in the literature. In this study, these dimensions are added to those included in the menu approach in Table 4.1, and the activity based approach in Table 4.2, and are captured in a variety of ways within the social element of clusters. In this way, the framework provides an organisational structure for the study that allows the full scope of clusters to be explored.

4.4.3 The Framework - Elements and Dimensions

Driven by the intrinsic and dynamic nature of clusters, the framework developed in this study uses cluster elements and their dimensions to define and describe co-located regional wine and tourism clusters that range in significance and size. This means the framework should facilitate the capture of cluster dimensions that might otherwise be overlooked.

The three cluster elements – geographic, economic and social – previously identified have associated dimensions. The geographic element comprises a number of dimensions; those in the framework, which rely on the physical presence of key factors important to business development, include:

- physical characteristics associated with natural resources
- dependence on physical attributes of the region
- infrastructure
- location
- distribution, density or territorial extent.

The economic element is recognised and documented in the literature; in this framework it encompasses dimensions that reflect:

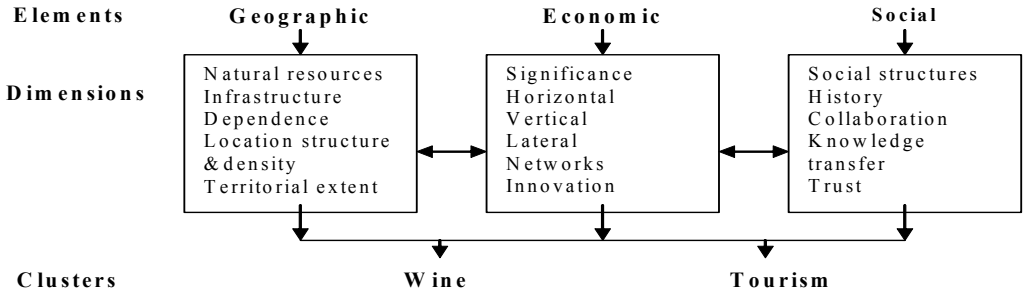
- economic significance within the region
- vertical, horizontal and lateral integration
- networks
- innovation.

Within the social element, dimensions that acknowledge the role of social structures include:

- history
- collaboration between enterprises and other cluster members
- knowledge transfer
- trust.

Figure 4.1, which represents the cluster elements and their related dimensions, is the first stage of the framework. The cluster dimensions outlined cater for the peculiarities of rural and micro-industries that may not exhibit characteristics of economic significance, critical mass or industry classification and are specific to this study. These dimensions should not be seen as exhaustive or applicable to all clusters, and may vary according to the nature and intent of the research being undertaken.

Figure 4.1 Representation of the framework for cluster elements and cluster dimensions



By determining the cluster elements and dimensions to be measured, the next stage in the development of the framework is to describe and classify the clusters identified. This next section discusses cluster classification.

4.5 Cluster Classification

This framework allows the cluster identification process to be divided into two components. Firstly to describe or classify the cluster at some point on this continuum; secondly, to identify inter-relationships that may be passive or active processes that influence the strength of a cluster and the type of cluster.

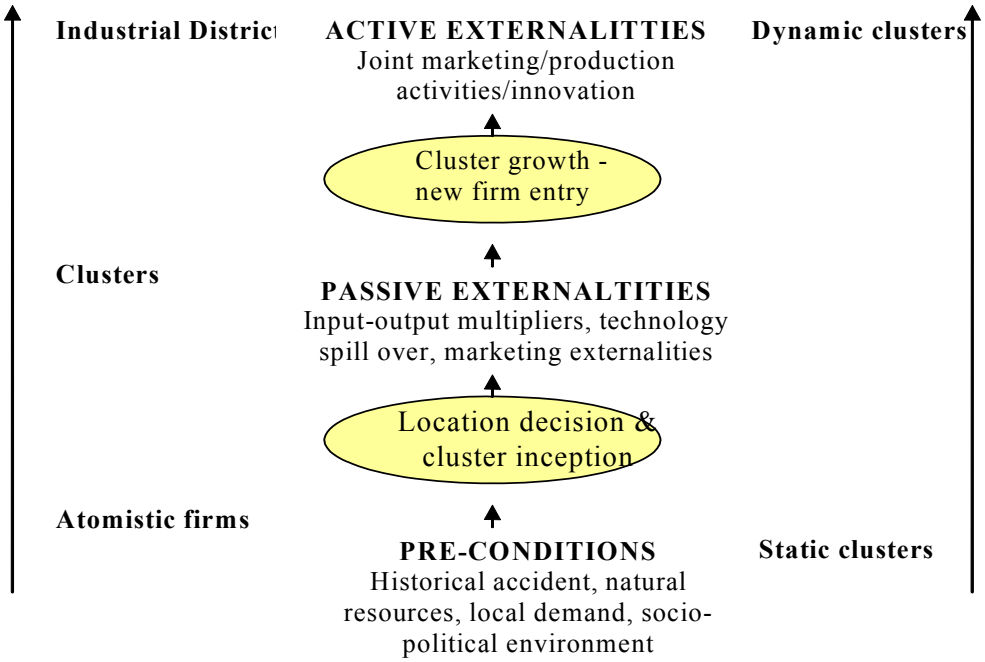
4.5.1 Classifying Clusters

A cluster classification process that applies to micro industries of limited economic significance requires a broad and flexible approach that recognises a diverse range of cluster dimensions. The focus of this approach is systematic rather than aggregative and allows for a looser definition or classification of clusters; one that may better suit rural/regional areas (Rosenfeld, 1997).

In the previous chapter, several cluster classification systems were identified that delineate the way clusters can be described in the regional context and at a point in time. P. Brown (1999) proposed a cluster continuum (see Figure 4.2.) which represents clusters as part of a changing process; cluster life cycles and the notion of evolving clusters were also raised (Bryant & Wells, 1998; Dosi & Nelson, 1994; Murphy et al., 1997; Rosenfeld, 2002a). This study sees clusters within the context of a changing environment and is therefore concerned with clusters as part of a continuum rather than a static entity. It is this perspective that enables clusters to be recognised at a range of development levels, which has implications for this study where a range of different cluster types might be identified.

Positioning clusters on any scale is problematical and open to interpretation; however, a continuum allows the cluster to be subject to movement and able to be re-classified at any point in time. This is an important factor in the context of developing or immature clusters.

Figure 4.2 The cluster continuum



Adapted from P. Brown (1999, p.61)

4.5.2 Cluster Pre-conditions, Passive and Active Cluster Processes

P. Brown (1999) refers to cluster pre-conditions, which are discussed in Chapter Two in terms of wine and tourism and the development of the wine-tourism industry. These conditions will be explored in relation to each of the clusters identified in this study in subsequent chapters. Pre-conditions are those factors that are present in cluster development; they may spark this development or may add incrementally to such development.

The existence of passive and active externalities referred to by P. Brown (1999) can determine the level of dynamism a cluster generates. These externalities are part of the cluster classification process and reflect the types of clustering processes that are present. As indicated in Chapter One, passive cluster processes occur when businesses co-locate; they occur without any conscious effort on the part of the individual businesses but provide positive benefits to the businesses. These benefits generally relate to traditional cluster externalities and include specialist inputs, spill-overs of knowledge, the existence of skilled labour or local knowledge

and infrastructure development, which occur outside the sphere of influence of the individual business. Rather, they occur by passive interaction of businesses within a cluster or between clusters.

As these passive processes become stronger, active cluster processes such as joint marketing and production activities, innovation and infrastructure support may begin to develop. These active processes relate to the dynamism of clusters, they are different from passive cluster externalities in that they depend on those benefits gained only through conscious activity by businesses within the cluster (Brown, P., 1999). The dynamism created is a consequence of highly developed inter-relationships between businesses in the cluster, and may occur between clusters. These relationships involve competition, collaboration and joint activity. Use of the passive and active processes as factors in classifying clusters has been incorporated into the framework as a method of identifying stages of development, levels of dynamism and relationship development within each cluster and between the clusters being studied.

There are other cluster classification approaches that are less about levels of activity and more about types of production. For example, Verbeek (1999) and Roelandt and Hertog (1999) classify clusters into two distinct categories based on similarity or interdependency of production, which reflect a static approach. This form of classification may restrict the ability to describe clusters in the micro context because it largely depends on concentration of enterprises. However, it also reflects how inter-dependent cluster members are on one another, whilst in turn has implications for cluster complementarity.

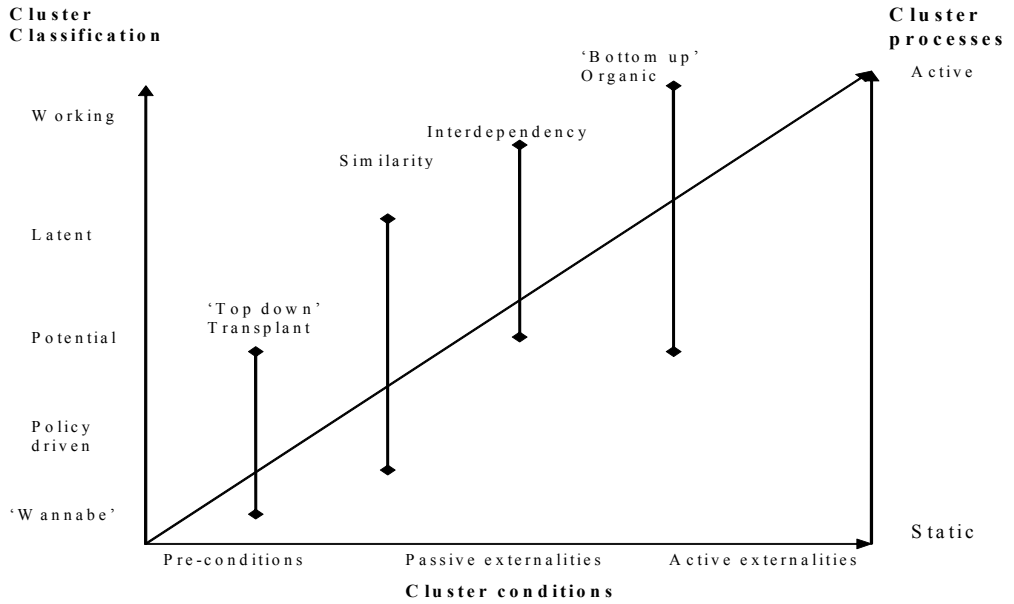
The import of inter-relationships among firms in a cluster is recognised by both Rosenfeld (1996b) and Enright (2000a, 2000b); when classifying clusters, they consider the level of firm interaction. This level of interaction may become a key factor in determining the shape and strength of the cluster. This study adopts the terminology of both Rosenfeld and Enright in classifying clusters, and these classifications are presented in Table 4.3.

Table 4.3 Cluster classifications used in this study

Cluster classification	Key features	Policy implications
Working clusters	*Critical mass of local knowledge, expertise, personnel and resources *Agglomeration economy used to advantage in competing with firms outside the cluster *Dense clusters whereby interaction within the cluster is different both quantitatively and qualitatively from interaction with firms not in the cluster *Complex patterns of co-operation and competition able to attract key personnel or resources from other locations *A knowledge of the interdependence of local competitors, suppliers, customers and institutions	*Working* cluster policy should emphasise helping them penetrate export markets
Latent clusters	*Critical mass sufficient to gain benefits of clustering *Insufficient level of interaction and information flows to truly benefit from co-location *Firms do not think of themselves as clusters and do not exploit the potential benefits closer relationships with other local organisations *Clusters often attract cluster development initiatives to facilitate cluster activity	*Latent* cluster policy should be directed towards helping them reach a level of self-realisation that will allow development of inter-firm linkages, information building and institution building
Potential clusters	*Contain some elements needed for cluster development *Need to be deepened and broadened to benefit from the impact of agglomeration *Apparent gaps in inputs and services, information flows that support cluster development *Lack interaction and self-awareness of *working* clusters	*Potential* cluster policy should focus on helping attract critical mass of economic activity to become a *working* cluster
Policy driven clusters	*Chosen by governments for support *Lack critical mass *Lack favourable conditions for organic development *Chosen on political grounds rather than via an analytical process	Policy driven cluster focuses on a 'top down approach'
'*Wannabe*' cluster	*Often policy driven *Lack critical mass *Lack recognised favourable conditions for cluster development	

The realisation on the part of a business that it belongs to a cluster may have a significant impact on how the cluster develops. The implications of this self realisation is important when classifying clusters and suggests, that by including policy driven and *wannabe* clusters, it allows emerging clusters to be identified. This is of particular importance when cluster studies are applied to micro-clusters. They may be too broad to be recognised as clusters under a more rigid classification system, or when the seeds of a cluster are based in regional development policy; "…as if a cluster only exists if it is identified by some authority" (Enright, 2000a, p. 324). A review of these cluster classifications and the and how they might apply in this study is presented in Figure 4.3 which provides an indication of how a range of cluster models relate to the classifications within the framework of this study.

Figure 4.3 Cluster classification relationships



An approach which combines the classifications of Rosenfeld (1996b) and Enright (2000b) with the continuum developed by P. Brown (1999) allows for a range of cluster types and levels of development to fit within the framework. This framework, and associated cluster identification process, recognises the importance of cluster processes that may otherwise be obscured using a more prescriptive approach. The classification approach adopted in this study is a tool for classifying and organising the types of clusters in this study, and no claims are made as to its applicability outside this study

When using these classifications to determine cluster type and activity level, the relationships between clusters are not generally considered. However, of particular interest in this study is the types of clusters and how they this may influence how co-located clusters behave, and whether there is any relationship between cluster types and level of interaction between co-located wine and tourism clusters.

4.6 Cluster Complementarity and Cluster Overlap

This study uses the concept of cluster complementary as a way of assessing cluster processes between co-located wine and tourism clusters. Cluster overlap refers to shared activities between these clusters. This section places these terms in the context of this study and framework.

4.6.1 Complementarity

There are a number of views regarding the use of the terms complementarity and competition. As indicated previously, the interpretation of complementarity in this study is aligned with Porter (1998). However, this interpretation does imply a degree of aiding that may stem from complementary activity, while Stern (2004) delineates these terms by substituting aiding and competing when he refers to inputs.

The three characteristics of clusters identified earlier that facilitate levels of complementarity are co-location, comparability and reputation; these can be achieved by both product and location. The reason that businesses co-locate has been widely discussed since theories of industrial districts (Marshall, 1910) and agglomeration (Hoover, 1937) were posed. In the cluster literature, co-location facilitates close social interaction and hence social contact between businesses, which ultimately enhances trust and inter-business relationships (Harrison, 1991). In addition, the co-location of businesses may be complementary, demonstrated through joint marketing, referrals and trade fare participation (Brown, P., 1999). In tourism, destination marketing aligns with co-location and joint marketing. Similarly in wine clusters, the notion of branding and regional recognition relies on co-location and joint marketing and promotion.

Businesses which are similar that co-locate may benefit from spill-over as customers engage in the search for particular products (Brown, 1989; Newman, 1977). This is a powerful driver for retail outlets, in particular, to co-locate and is frequently discussed in retail literature (Brown, P., 1999; Brown, 1989; Ghosh & McLafferty, 1987). Regardless of whether businesses cluster

together for the benefits of customer spill-over or benefit from the customers' desire to access comparable purchases, co-location provides a focus for purchases of like goods or services. Consequently, the idea of being located within a cluster of businesses providing particular goods or expertise enhances the credibility of the individual business (Saxenian, 1990). Opportunities for complementary product development are likely to be more common in these environments and, in the context of this study, may add to both wine and tourism product development or new businesses.

Reputation for a particular place or product makes it more likely for customers or other businesses to favour that location (Porter, 1998). The literature on networking between firms to establish recognition is extensive and links closely with much of the cluster literature (Enright, 1993; Ffowcs-Williams, 1997; Fischer, Suarez-Villa, & Steiner, 1999; Rosenfeld, 1996b). The legitimacy of locating a new business in an area that has a developed or developing reputation for particular or complementary goods or services reduces the liability of the new business (Pouder & St John, 1996). The complementarity of such businesses can lead to new businesses and product development. However, it can also limit success because it ties the success of one group of businesses or cluster with another, and therefore the reputation of one may have an impact on the other. This may be the case where a tourism cluster and a wine cluster are co-located and a favourable wine reputation benefits and complements the tourism cluster, but a poor tourism reputation may have a negative impact on the wine cluster.

Porter (1998) points out that activities evolving from complementarities also offer cluster efficiencies in trade fair participation and marketing delegations. Added to the benefits of co-location and reputation, co-operation and joint activities build on the complementarities derived from location and product. Stimulating these activities is increasingly becoming part of government policy, which is particularly the case with both the tourism and wine industries in Australia (Marsh & Shaw, 1999, 2000; Tourism Victoria, 2002b).

The framework provides a mechanism whereby evidence of co-location and reputation can be compiled in a way that identifies if complementarity occurs between wine and tourism clusters in each of the regional studies. Consequently, an opportunity exists for this study to explore whether complementarity has an impact on the strength and scope of particular clusters or the development of a new cluster.

4.6.2 Overlap

Cluster overlap has recently been recognised as having some potential impact on cluster activity. The prosperity of a region depends on the productivity of a range of industries. Porter (2001) argues that a regional strategy should be attentive to clusters that overlap. However, the extent of cluster overlap is often the result of how broad or narrow the cluster definition is. Seemingly, the broader the cluster definition, the greater the chance of overlap; conversely, the narrower the definition, the less the likelihood of overlap (Institute for Strategy and Competitiveness, 2003). The difficulty is therefore in making generalisations about cluster overlap and its measurement. In this study, cluster overlap refers to one cluster having common resources, characteristics or needs with another co-located cluster while both of these clusters are engaged in common activities.

Porter (2003) uses the sharing of common industries at a level greater then 20% as the determinant of overlap when measuring clusters with overlapping boarders. In this study, the degree of overlap is determined through the sharing of common activities, membership to industry organisations and undertaking similar activities by greater the 20% of the members of each cluster. This understanding of the extent of overlap requires both clusters to contribute to this overlap, which is a two-way process and not reliant on one cluster encroaching on another with no apparent reciprocity from that cluster.

The framework, allows this interpretation of cluster overlap to be used in this study to identify whether it occurs in each of the case studies and if it does so between the co-located wine and tourism industries. However, this approach it is not regarded as a conclusive measure of cluster overlap such as that adopted by Porter (2001), but it does provide an opportunity to demonstrate if cluster overlap plays a part in how co-located clusters in this study are organised and interact.

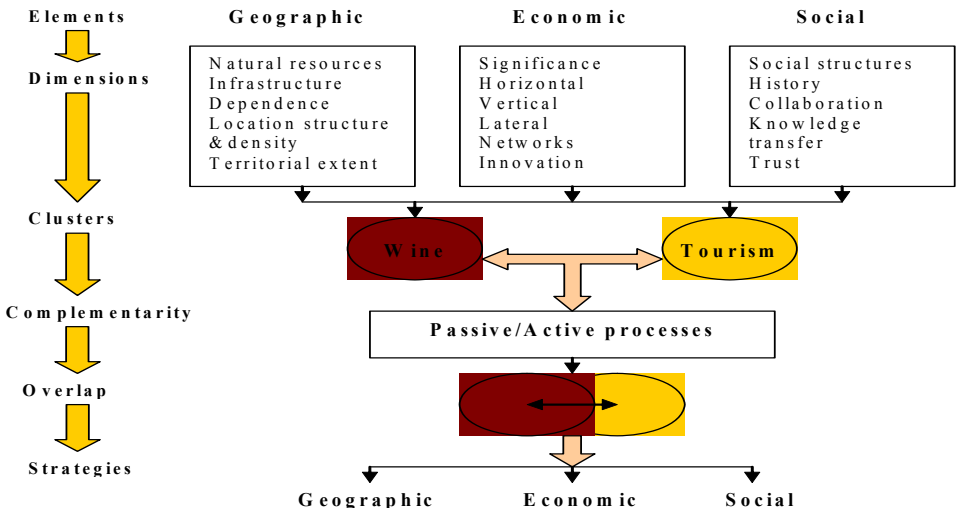
4.7 The Framework for this Study

The development of a framework, which comprises five consecutive components, has become integral in organising this study. The first component identifies and describes the elements and

explores the dimensions of the cluster (Enright, 2000a; Jacobs and De Man, 1996; Rosenfeld, 1997; Verbeek, 1999). The second component classifies each cluster, in order to identify where it is on the cluster continuum and hence the level of dynamism that exists. The third stage involves understanding the relationships that occur between co-located clusters to determine those dimensions that are complementary within and between the wine and tourism clusters. The fourth stage identifies the extent of cluster overlap between these co-located clusters. The final stage develops strategies that strengthen the identified inter- and intra-cluster complementarities.

The development of this framework is built on cluster identification and cluster process. The framework sets out how these clusters can be identified and compared. This is important for confirming these clusters exist and that inter- and intra-cluster processes occur. In order to answer the research question posed in this study, it is necessary to understand these aspects of clusters. In addition, the creation of this framework, which can be applied at an industry level and in three separate regional settings, allows questions relating to the significance of location and industry type on cluster behaviour to be addressed. A representation of the framework is shown in Figure 4.4.

Figure 4.4 Wine and tourism cluster framework



The framework directs the study to identify the characteristics of regional wine and tourism clusters that enable their overlap and complementarity using geographic, economic and social dimensions to be determined.

4.8 Chapter Summary

This chapter has presented both the rationale for the framework upon which this study is organised and the framework itself. In essence, the chapter has developed a framework that sets out a process to classify clusters based on cluster elements, dimensions and processes that can be applied in the micro-economic and regional context. The framework provides a method for looking at rural and fragmented industries as clusters and provides an opportunity to identify overlaps between sectors. It has also identified and clarified the notion of complementarities and how they are to be interpreted and embedded in this study. Importantly, but often overlooked in the literature, it is overlap of co-located clusters and their complementarities that may enable a region, through joint cluster activity, to achieve economic advantages particular to that region or particular industries or clusters.

The framework developed in this chapter is not intended to make any explicit or other claims but rather to provide a structure whereby various themes identified, that may influence cluster development in the particular regional wine and tourism studies being undertaken, can be positioned. The framework is used to explain and examine rather than predict. It is the very complexity of clusters and their application in these regional micro industries that has led to the development of this approach. The methodology for this study, which supports this framework, is described in the next chapter.

Chapter Five Methodology

5.1 Introduction

The methodological approach for this study is described in this chapter. It presents the research paradigm and conceptual framework of the study and provides the justification for this approach. This chapter also discusses the choice of the methodological tools to be used, their validity and reliability. Data collection methods are discussed, as is the data triangulation used to validate findings.

The chapter includes the basis and line of questioning chosen for in-depth interviews conducted and incorporated in the questionnaire. The methodology outlined in this chapter will provide both qualitative and quantitative data to progress an understanding of what, how and why tourism and wine clusters may facilitate sustained regional economic development.

5.2 Research Approach

Cluster research has centred primarily on national competitive advantage for export-orientated clusters and their positioning in the global economy. The identification of these clusters has been through quantitative analysis of economic data. This data has generally been statistically analysed to identify concentrations of production factors on a regional or national scale (Feser & Bergman, 2000; Porter, 1990, 1998; Rex, 1999). This type of analysis has proven useful in identifying and comparing regions, levels of growth and, in many cases, export potential. However these results do not provide an insight into the functioning of clusters, that is, how they interact internally or with each other. Another cluster approach focusing on the relationship

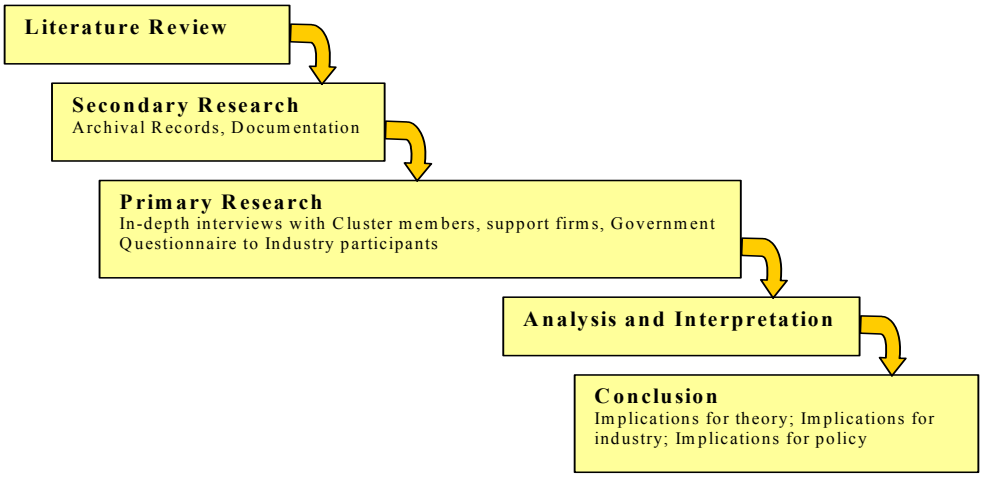
between cluster members, using ethnographic methodologies to understand the apparel network in New York, has introduced the relevance of qualitative research in understanding the relationships and inter-firm activity within individual clusters (Uzzi, 1996).

Through the cluster literature, a common theme has developed which is centred on spatially bounded systems involving active networks that facilitate competitiveness and can attract economic growth. Consequently, cluster research involves the collection of an extensive amount of diverse data. This data can include geographical location data, economic data and an examination of social factors, and is derived from multi-disciplinary sources. Methodologies that can identify the relationships between firms involved in the cluster, and between co-located clusters that may overlap, are complex. The nature of this study requires a methodology that is able to explore these characteristics and provide a holistic understanding of the cluster phenomenon within this application.

Methodologies of this type have been developed within the cluster research genre and generally combine both qualitative and quantitative tools (Austrian, 2000; Enright & Ffowcs-Williams, 2000; Jacobs & De Man, 1996; Rosenfeld, 1995; Verbeek, 1999). This approach has been adopted in this study to explore the complexity of regional micro-clusters.

As previously outlined, the study involves describing and classifying micro-clusters in the tourism and wine industries of three regions in Victoria. In order to conduct this study, an extensive quantity of information from multiple sources is required to gain an in-depth picture of each cluster and how they relate to one another. A representation of the research approach, which involves a series of related steps, is shown in Figure 5.1

Figure 5.1 The research approach



5.3 Research Paradigm

In the past, business and social research has primarily adopted the positivist paradigm. However, the complexity of inter-relationships in business and social environments has become better understood which has led to a reassessment of this approach (Easterby-Smith, Thorpe, & Lowe, 1991; Hunt, 1991; Williams, Money, & Swartz, 1998). According to Williams et al. (1998) "...positivism, especially in the social sciences, is not regarded as an approach that will lead to interesting and profound insight into complex problems especially in the field of business and management studies" (p.33).

The reductionist approach of positivism simplifies the real world and, in so doing, does not fully account for the variables that naturally exist in this environment. Williams et al. (1998) suggest that through this simplification "…some of the complicating factors, and possibly most interesting factors, have been stripped out" (p. 36). Within the positivist paradigm, the social world exists externally and its properties are measured objectively. This key concept assumes that reality is external and objective, and that knowledge is significant only if based on external observation. This approach has become synonymous with quantitative, deductive approaches

and theory testing in business research methodologies (Easterby-Smith et al., 1991; Hussey & Hussey, 1997).

The phenomenological approach has become synonymous with qualitative research and induction. It attempts to infer general patterns of order and structure from particular sets of empirical data (Easterby-Smith et al., 1991). Denzin and Lincoln (1994) and Hunt (1991) describe three separate approaches to knowledge acquisition and inquiry within the phenomenological philosophy. Firstly, critical theory which seeks to produce transformation in the social order and judge order by historical reflection; secondly, constructivism which contends that knowledge and truth are created, not discovered by the mind (Denzin & Lincoln, 1994). The third approach is different in that it accepts that an external reality exists, and that both tangible, observable concepts and unobservable concepts – such as attitudes and intentions – form part of this reality (Hunt, 1991).

Hussey and Hussey (1997) iterate that positivism is one extreme of the research paradigm and phenomenology is the other, and highlight the importance of recognising there is a continuum between the two extremes. Previously, Morgan and Smircich (1980) identified six stages in this continuum; this study fits most comfortably in the third of these stages "…where the reality is derived from the transmission of information, which leads to an ever-changing form and activity" (Hussey & Hussey, 1997, p. 51). The reasons for this are based on the need for this study to combine both quantitative and qualitative data in order to fully investigate the research questions. This discussion positions the study within a paradigm that blends some aspects of positivism and phenomenology. This allows a realist approach that applies both quantitative and qualitative research as a research methodology. Within the sociology genera, Glasser and Strauss (1997) agree that both forms of data are necessary but make the point that quantitative approaches should not be used to test qualitative data; rather, both should be used '…as a supplement, as mutual verification and, most importantly for us, as different forms of data on the same subject, which, when compared, will each generate theory" (p. 18).

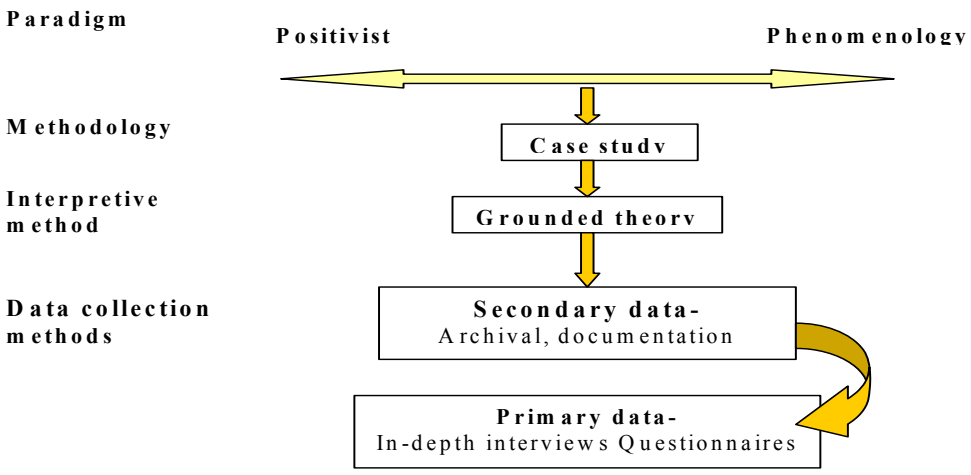
This study falls within the realist approach because the research is focused on the contemporary phenomenon of clusters. Inductive theory building is required because of the limited evidence in the literature of an accepted generalised set of principles or constructs from which to base a deductive approach. The multi-disciplinary nature of the study requires the collection of both observable and unobservable information on the cluster phenomena. These include motivations for action and relationships between businesses and clusters. A truly positivist approach would

be concerned with only those clusters where the demonstrated processes can be quantitatively measured.

5.4 Methodological Approach

A conceptual framework of the methodological approach to this study involves a number of phases and includes a range of data gathering tools. Figure 5.2 is a representation of this framework and clearly shows the path the research methodology takes.

Figure 5.2 Conceptual framework for the research methodology in this study



5.4.1 Case Study Approach

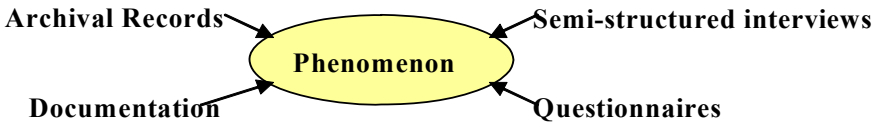
A case study approach has been chosen as the most effective means to conduct the study. This approach provides the depth of information needed from extensive and diverse information sources to be gathered for each of the three study areas. Because the research addresses who, how and why questions, both quantitative and qualitative data will be collected under the case study umbrella (Yin, 1994).

The case study approach requires the gathering of comprehensive and in-depth information (Hussey & Hussey, 1997; Patton, 1990). This enables a detailed comparison to be made of the type of cluster and the impact of clustering, within and between industry cluster groups. The advantage of generating this rich data is that it enables a detailed analysis of the dynamic relationships within particular clusters to be conducted. The application of case studies in this study is particularly pertinent as this type of research is often described as exploratory and is used in areas where there is a deficient body of specific knowledge (Hussey & Hussey, 1997).

Case study research undertaken by Yin (1994) involves multiple methods for collecting data, which may be both quantitative and qualitative. This combined approach has been adopted for this study, which provides for both theory building within the context of the case studies and between the case studies. This in turn provides an opportunity to develop a further understanding of cluster overlap and complementarity.

Data triangulation (Patton, 1987) can address the potential problems of construct validity in case studies "…because multiple sources of evidence essentially provide multiple measures of the same phenomenon" (Yin, 1994, p. 92). Case study methods using multiple data sources of evidence produce higher quality outcomes than those relying on a single source of information (Yin, Bateman, & Moore, 1983). Figure 5.3 shows the convergence of multiple data sources for each of the three case studies in this study.

Figure 5.3 Convergence of data



The case study approach does have limitations and these have been well documented by Yin (1994). One important limitation results from the inability to make generalisations based on a case study. Another key factor is that the accuracy of the data collected can be questioned due to its reliance on participants' recollections of past events or perceptions of current events. These limitations are recognised; however, they are only a problem if the purpose of the research is to construct a generalised theory on local industry clusters. Furthermore, a base is required to

develop such theory. Given that the cluster phenomenon is unique and not readily transferable from one setting to another, and there is limited data from which to develop such a theory, generalised conclusions are beyond the scope of this study.

The study acknowledges these criticisms and has addressed them by using multiple case study areas. The triangulation of data from additional sources, including government agency, industry association, consultant reports and personal communication, and the focus on current situations where reliance on memory is minimal, attempts to negate these limitations.

Austrian (2000) uses case studies as a methodological tool to complement quantitative analyses of clusters. Austrian's case study is based on three elements:

- Descriptive data which provides a detailed description of the cluster and includes most of the variables used in the statistical model used to identify the cluster.
- The literature review which collects secondary data for each cluster case study and develops cluster specific knowledge using academic, industry and local sources.
- An interview with cluster leaders which provides cluster specific information and is directed firstly at key industry players and secondly to others that support the cluster.

This methodology is reflected in this study and exhibits the strengths of data triangulation.

5.4.2 Interpretive Method

The collection and analysis of data relating to the identification and complexity of clusters in regional tourism and wine industries, and the interaction between these clusters, follows a modified grounded theory building approach (Glaser & Strauss, 1967). Traditional grounded theory advocates generating theory from data that is refined by multiple data collection phases. Grounded theory starts from the premise of an absolutely clean theoretical slate and bases the theory on the data collected (Strauss, 1987).

The more moderate approach adopted for this research accepts that to begin theory-free in most research is difficult, and that both induction and deduction can be linked in theory development. This has become an accepted research approach in recent years (Perry, 1998). Grounded theory has been refined because, in practice, it is difficult to ignore theory already accrued before

commencing the research process (Strauss, 1987). At the outset, a grounded theory approach was used in this study in the context that as the study progressed, the data gathered at each stage modified and determined the data to be gathered at the next stage as well as the analysis required. This approach was not predetermined. However, the resultant theory building has been modified through observation and has been informed and guided by existing literature discussed in preceding chapters, and from pre-existing knowledge and experience of the industry-based clusters being studied.

5.4.3 Data Collection Methods

Both quantitative and qualitative research methods are used in this study. Though the use of quantitative methods is limited, they are particularly applicable in identifying certain known characteristics of clusters, and in providing a comparative basis both within and between clusters in this study. Descriptive statistical analysis will be combined with more complex factor analyses to identify key factors in the data gathered. This quantitative analysis will combined with a qualitative account of the three regional case studies. Quantitative data will not be used to test qualitative data, or vice versa, but both will be used for mutual verification.

5.4.3.1 Sample selection

The selection of three regions for this study means that differences in wine and tourism related activity can be described and compared on an individual cluster basis, on a regional basis, and on an industry basis. The three regions were also selected because they align with the University of Ballarat's commitment as a regional university to undertake useful research within western Victoria. The relevance of this research allows the outcomes of this study to have some application within current regional development policy formulation.

Three main data collection processes were adopted. Firstly, a compilation of relevant secondary data, archival records and documents (including published research and reports, and state and local government and industry association data) was assembled and analysed to provide the necessary background of the wine and tourism industries in each region.

The second data collection method was via in-depth interviews. The type of sampling procedure used in this instance was snowball or networking (Hussey & Hussey, 1997). This method is

often associated with phenomenological research where it is essential that people interviewed have some experience with the phenomenon being studied. The sample population for each of the three regions was drawn from key stakeholder representatives in the wine and tourism industries, local government, local industry group and education providers, and other stakeholder representatives identified as the extent of the cluster was identified. Initial stakeholder identification resulted from preliminary discussions with industry partners, tourism and wine associations, local government and educational institutions. For each region, the number of key representatives initially identified varied due to the extent of industry/government/educational involvement in each region. Additional stakeholder representatives were identified and added to the initial list.

The third data collection method involved a targeted questionnaire directed to all participants in the wine and tourism industries who were identified through their involvement in industry associations and through the in-depth interview process. The sample selection process employed for this data collection was judgmental (Hussey & Hussey, 1997) as the participants were identified on the basis of their involvement in the phenomenon prior to the commencement of the survey. The broad sweep questionnaire afforded an opportunity to broaden the depth of data from all players in the wine and tourism industries and provided a check on the data gained from industry representatives. In addition, the industry partners view this data as providing a particularly valuable resource for future industry development initiatives. The sample for this survey included all participants identified through association membership and interviews. It is believed that this sample truly represents the range of businesses and individuals active within each industry.

5.4.3.2 Secondary data – archival records and documentary data

Archival records, including service records, organisational records, maps and charts, lists of names and other relevant items, survey data and personal records, can all be used in conjunction with other information sources in case study research (Yin, 1994). In this study, archival evidence was deemed relevant because it provides data that can be used to compare regions and to provide an overall insight into regional industry characteristics. In order to determine the relevance of this data it is imperative that the source and accuracy of the data is taken into consideration as "…sometimes, the archival records can be highly quantitative, but numbers alone should not automatically be considered a sign of accuracy" (Yin, 1994, p. 84). The use of such documentation is best if used in conjunction with, and to augment, other evidence. A

systematic search of relevant documentation formed part of the data collection method employed for this study and was undertaken primarily during field visits.

5.4.3.3 Personal in-depth interviews

Marshall and Rossman (1995) developed a table matching research questions and strategies to the purpose of the study, and listed appropriate evidence collection methods. Because this study is concerned with phenomenon, which is not necessarily well understood, it requires a *rich picture* to be generated to explain or understand cluster behaviour. In order for this to occur, qualitative evidence is necessary (Williams et al., 1998). In case study methodology, in-depth interviewing is an important data collection method (Marshall & Rossman, 1995).

In-depth interviewing, which can be associated with both positivist and phenomenological methodologies, is a method of collecting data from selected participants to determine what they do, think or feel (Hussey & Hussey, 1997). This allows both qualitative and quantitative data to be collected (Yin, 1994). The need to document the cluster phenomenon encompasses a descriptive approach and this involves identifying salient behaviours, attitudes, structures and processes that occur within this phenomenon (Marshall & Rossman, 1995).

A positivistic approach suggests closed questions or a structured interview, whereas the purely phenomenological approach suggests unstructured questions where the questions have not been pre-determined (Hussey & Hussey, 1997). A semi-structured interview that combines both structured and unstructured formats has been chosen for gathering both the depth of data and the specific information required for this study (Williams et al., 1998). Semi-structured interviews are those where the researcher uses an interview guide or questionnaire to provide some structure. When the research is being conducted in several locations, it is particularly important to systematise the collection of information using this format so that comparisons can be made during the analysis phase (Williams et al., 1998).

Given both the complexity and depth of information to be collected in this phase and the need for a high response rate from selected interviewees, personal interviews were deemed the most appropriate technique. The interviews were conducted with cluster stakeholders identified in both the tourism and wine industries in each of the study areas. A high participant rate was anticipated and achieved and involved a range of stakeholder inputs.

Yin (1994) describes interviewing as "one of the most important sources of case study information" (p. 84). However, there are some acknowledged limitations to interviews as a source of data collection; and these relate in part to the skill and personality of the interviewer. The incidence of respondents telling the interviewer what they think they want to hear can distort information and the often large volume of information obtained can be difficult to analyse. In order to address these limitations in the study, the interviewer spent considerable time making the interviewees feel at ease and ensured she had a sound knowledge and interest in the business areas of the participants. It should also be noted that interviews should always be considered verbal reports only (Yin, 1994), and therefore are subject to bias, poor recall, and poor or inaccurate articulation. To minimise these limitations, this study supplemented the interview data with information from other primary and secondary sources.

Retaining a business style format for the interview was seen as most appropriate for this phase of data collection, as the participants were being interviewed as representatives of their respective industries and not as individuals within the industry. As a consequence, these well-informed respondents provided important and, on occasions, candid insights into the characteristics of the regional industries they represented. Their knowledge provided shortcuts to prior history and helped identify other relevant sources of evidence (Yin, 1994). In order to put interviewees at ease, an assurance was given that their anonymity would be maintained and the information gathered would be analysed and published in such a way as to protect their interests. Participants for each case study were selected on the basis of being industry representatives, regional development experts and individuals from businesses or institutions represented in the cluster chosen on the basis of their position and knowledge or by recommendation as having a good knowledge of the particular industry in their region. The advantage of selecting such representatives is three fold; in most cases the interviewee would have an extensive knowledge of industry issues, be familiar with the concepts of clustering and able to provide first-hand information and knowledge on the degree of cluster inter- and intra-firm interactivity.

The interview protocol for this study involved contacting the selected subjects by phone to invite them to participate in the interview, and then to confirm interview times as appropriate. An introductory letter was offered but none of the interviewees required this form of confirmation. Easterby-Smith et al. (1991) recommend this approach to provide credibility. And the time of contact, mention of industry partners was also included to add further validity and

encourage participation. In addition, the purpose of the study was introduced at this initial stage and a rapport was established between the interviewer and the interviewee. Subsequently, 32 of the total 35 potential interviewees who were approached agreed to be interviewed.

Interviews for each chosen subject were conducted consecutively at various locations, as nominated by the interviewee. The Ballarat case study interviews were conducted between 13 August and 1 October 2002. The Northern Grampians case study interviews were conduced during two time periods due to the industry partner being on maternity leave during the course of the research. The first six were conducted between 2 –3 of December 2002 and the second interview phase was held 24 –25 March 2003. The Bendigo case study interviews were spread over a 12 month period during 2003-03, as these interviews required travelling and the scheduling of overnight commitments.

The cohort of interviewees comprised eight representatives from tourism bodies/businesses, seven from wine associations/businesses, and fourteen from economic development agencies and local governments with specific knowledge of these industries. A further three interviewees were derived from the snowballing approach adopted. All those interviewed were selected on the basis of their knowledge of the wine or tourism industries in their particular case study region[5].

The in-depth interview combined both an open-ended and structured format and generally took one hour to complete. The schedule and questions were formulated from the literature review and other research into the identification and functioning of clusters (Austrian, 2000; Brown, P., 1999), and the framework developed for this study. The schedule was broken into three areas of questioning – geographic, economic and social elements – and focused on the cluster dimensions within these. The purpose of the interviews was to identify cluster strengths and structure, and from this activity to classify cluster types as described by Enright (2000b) and Rosenfield (1996b).

At the conclusion of each interview, respondents were asked to complete a relationship map to confirm their understanding of the strength of relationships with other regional providers of goods and services. This technique was derived form research undertaken by P. Brown (1999)

[5] Fourteen interviews were conducted in the Ballarat case study region, 11 in the Northern Grampians region and seven in the Bendigo region

on the Christchurch electronics cluster, which required interview respondents to fill out a network (or cluster) map. This diagrammatic approach provided valuable information regarding the extent of stakeholder groups and the strength of relationship between various stakeholders within a region and in neighbouring regions. Appendix A shows the interview schedules for this study.

5.4.3.5 Questionnaire

Questionnaires can also be used in both positivist and phenomenological research paradigms. "A questionnaire is a list of carefully structured questions, chosen after considerable testing, with a view to eliciting reliable responses from a chosen sample ….to find out what a selected group of participants do, think or feel" (Hussey & Hussey, 1997, p. 161).

Questionnaire-based data collection involves three inter-related activities: questionnaire design, method of administration, and sample selection (Williams et al., 1998). Williams et al., point out that it is not possible to provide a definitive way of doing a questionnaire as each study will have peculiarities that make it unique. A questionnaire can contain open-ended or closed questions, or a combination of both (Hussey & Hussey, 1997).

Despite some questioning of the applicability of questionnaires in business research (Jung, 1983), this technique is commonly used. Although, it does assume the existence of a degree of generalisability of public opinion that can indeed be tested via a set of questions. The participants in this questionnaire are involved in the industry; therefore, it is assumed that they are knowledgeable of and interested in the research topic. This means the questions can be aimed at a fairly high level (Hussey & Hussey, 1997) and therefore show some degree of common understanding between individual participants, and hence some level of generalisability.

Questionnaire design should reflect information gleaned from scholarly, professional, and industry- based literature, together with information derived from interviews, brainstorming and focus groups (Williams et al., 1998). In this study, the questionnaire design was based on an extensive literature review, industry information, in-depth interviews and the use of existing questionnaires previously undertaken in similar research areas (Austrian, 2000; Brown, P., 1999; Johnson, 1998).

Two versions of the questionnaire were developed; one directed to the wine and grape growing industry, the other to the tourism industry. The questions in both the wine and tourism questionnaires are essentially the same, except where they refer to the specific activities that relate to the industry being investigated.

In each case, the questionnaire was directed to the owner or manager of the business, as they were considered to be in the best position to answer business related questions, having the overall business plan knowledge that reflects their business activities and relationships. The questionnaire was divided into five main themes:

- business activity and strategy
- importance of relationships, knowledge, skill development and natural advantage on business outcomes
- factors important for business growth
- importance of collaboration with other regional businesses
- demographic information.

Appendix B features the print version of these two related questionnaires.

Issues of bias in questionnaire responses, as described by Austrian (2000), were anticipated with allowances made for both non-response due to non-return of questionnaires and item non-response where not all questions were answered on the returned questionnaires (Hussey & Hussey, 1997). It is recognised that if data is not collected from all selected participants the data may be biased. Therefore, in order to maximise response rates, two methods of distribution were used: a computer administered questionnaire, which is an increasingly used technique generated electronically through e-mail (Williams et al., 1998), and a mail based questionnaire. It was assumed that most participants, because of their business needs, would have access to online distribution, so this was the initial form of distribution. In the minority of cases, the mail-out version of the questionnaire was posted to those without e-mail access or to those participants who indicated that they preferred to receive the questionnaire in this format.

In the case of the Ballarat region tourism study, follow-up questionnaires and letters or e-mails were sent to non-respondents to encourage feedback. However, it was not possible to use this

strategy in other case studies as contact details for these participants were not available to the researcher due to privacy laws. Instead, the distribution of these questionnaires was dependent on association member secretaries or other nominated persons who did not allow follow-up to occur and limited the desirable response rates and is a recognised limitation of the data collected.

Distribution of the questionnaire through this mechanism prevented the researcher being in control of the process and how and when the questionaries were distributed. In one instance (Northern Grampians wine study) contact with some participants proved difficult because of reluctance on the part of the association to distribute the questionnaire; however this was overcome through the researcher's local knowledge together with the online presence of many of the targeted participants.

The total number of responses for the tourism industry questionnaire was 132 which equates to a response rate of 32%. The wine industry questionnaire was more successful with a 46% response rate achieved through 49 respondents. Tables 5.1 and 5.2 detail the methods of distribution and response rates for each questionnaire in each case study.

Table 5.1 Tourism questionnaire response rates

Case Study	**Ballarat**		**Northern Grampians**		**Bendigo**		**Total**
	E-mail	Mail	E-mail	Mail	E-mail	Mail	
Number distributed	71	55	117	Nil	127	84	454
Non-response returned	16	5	15		*	1	37
Response	26	11	35		26	34	132
Response rate %	47	22	34		20	41	32

Note. * No indication of non-response from distribution by tourism association

Table 5.2 Wine questionnaire response rates

Case Study	**Ballarat**		**Northern Grampians**		**Bendigo**		**Total**
	E-mail	Mail	E-mail	Mail	E-mail	Mail	
Number distributed	Nil	51	8	29*	Nil	42	130
Non-response returned		1		2		Nil	3
Response		20	5	10		24	59
Response rate %		39	62	37		57	46

Note. * Membership of the Northern Grampians Wine Association was 26 businesses at the time of the survey

5.4.4 Data Analysis

A combination of both qualitative and quantitative forms of data analysis allows the range of data gathered in this study to be analysed and reported. This approach maximises the usefulness of data in this particular study, without placing greater emphasis on either data analysis method. Data interpretation was done using the SPSS[6] statistical package. Qualitative data gained through the in-depth interview was reported using the frequency of particular types of responses to themes and issues that arose through the interview schedule. No statistical analysis was conducted on the basis of this information, which was used as a source of descriptive material for each of the case studies. In addition, these data, together with the archival information and other documentation gathered, provided the themes of the questionnaire.

The analysis of the data gathered in the questionnaire allowed descriptive statistical analysis to be used to identify similarities and differences between clusters regions and industries. In addition, use of the F test of ANOVA was chosen to analyse variance both within and between groups of data. This analysis of variance is designed to test differences in the mean values that are derived from a 5 point likert scale for a number of variables, and to identify of these differences are of statistical significance. This is accomplished by analysing the variance, that is, by partitioning the total variance into the component that is due to true random error, and the components that are due to differences between means. These latter variance components are then tested for statistical significance and, if significant, the null hypothesis is rejected. Alternatively, if there are no significant differences between means, the alternative hypothesis, that the means in the population are not different from each other, is accepted.

In this study, the level of significance is denoted by the p-value which denotes the probability of a difference between groups occurring. Traditionally the null hypothesis is rejected if the p-value is not more than 0.05. However, a p-value of 0.1 is accepted in most social research and because this study has a social science aspect, this is the approach adopted. Therefore, when the p-value of a statistic is said to be significant beyond the 1% level, a p-value of 0.1 or greater will mean the null hypotheses is rejected, concluding there is no difference between groups regarding that factor. Conversely, if the p-value is less than 0.1 it is assumed a significant difference between the groups exists.

[6] SPSS UK Ltd. First Floor, St. Andrews House, West Street Woking , Surrey.

When a significant difference is identified, it can be at the 10% level (p=0.1), which is equivalent to being a 90% confident that the differences are significant and not the result of the sample being unrepresentative or by chance. A p-value of 0.05 is equivalent to being 95% confident the differences are significant and when p=0.01, there is a 99% level of confidence.

Additional and more complex statistical analysis has also been used in this study to identify the difference between groups (clusters, locations and industries). This more complex statistical analysis of the data identifies factors that might be important in an industry or locational context. This analysis, which is described in detail in Chapter Seven, involves using factor analysis and F tests.

5.5 Strengths and Limitations

This chapter has sought to explain and justify the methodology used in this research and the following section will review this methodology in terms of its validity, reliability and generalisability. The terms validity and reliability are often associated with quantitative analysis and there is some reluctance in applying them to qualitative or phenomenological studies (Kirk & Miller, 1986). This divergence in opinion over the use of these terms is described by Easterby-Smith et al. (1991) and summarised in Table 5.3

Patton (1990) suggests that validity, meaningfulness and insights generated from qualitative inquiry are related to the richness of the information gathered, the cases selected and the capabilities of the researcher. “The skilled observer is able to improve accuracy, validity and reliability of observations through intensive training and rigorous preparation” (p. 202).

Table 5.3 Questions of reliability, validity and generalisability

	Positivist viewpoint	Phenomenological viewpoint
Validity	Does an instrument measure what it is supposed to measure?	Has the researcher gained full access to the knowledge and meanings of informants?
Reliability	Will the measure yield the same results on different occasions (assuming no real change in what is to be measured)?	Will similar observations be made by different researchers on different occasions?
Generalisability	What is the probability that patterns observed in a sample will also be present in the wider population from which the sample is drawn ?	How likely is it that ideas and theories generated in one setting will also apply in other settings?

From Easterby-Smith et al. (1991, p. 41)

In this study, the significance of validity, reliability and generalisability are recognised as important; consequently, the research design and method have been developed to maximise the validity of results and the reliability and generalisability of the outcomes.

5.5.1 Internal Validity

Validity is defined as "the extent to which the research findings accurately represent what is really happening in the situation" (Hussey & Hussey, 1997, p.78). It can be recognised using one of three methods: triangulation, a chain of evidence during data collection, and protocol developed to guide the interviewer (Yin, 1994). In addition, care has to be taken to ensure that questions asked correspond with the explanation given to the respondent regarding the purpose of the study (Hussey & Hussey, 1997).

This study addresses these issues by interviewing and surveying multiple stakeholders and businesses allowing validation of information between participants. Data was triangulated against information from existing surveys, secondary data sources and archival data and documentation and using both qualitative and quantitative analysis methods. The approach was validated by senior staff in the School of Business, University of Ballarat, who reviewed the methodology, interview and questionnaire design, audited the research process and discussed the interview protocol. This was achieved through formal presentation, supervisor meetings and informal discussions with staff and other researchers.

The interview protocol and questions were trialled with a fellow researcher and a local economic development officer, and subsequent modifications were made to ensure clarity, time and effectiveness of the response sheet. The questionnaire was trialled with 25 students enrolled in the School of Education and Information Technology and Math Sciences at the University of Ballarat to confirm the usability of the online questionnaire and ensure that questions could be clearly understood. This process revealed several technical and grammatical errors that were corrected prior to the distribution of the questionnaire.

5.5.2 Reliability

Reliability is defined as "the degree to which the observations or measures are consistent or stable" (Williams et al., 1998, p. 289). The unique characteristics of clusters and cluster research case studies make it difficult to replicate from one context to another, which makes the issue of reliability of data problematic in this study. Yin (1994) suggests the goal for reliability is to minimise errors and biases in a study, which can be achieved in case-based research through careful documentation of procedures, developing a case study protocol and the development of a case study database. In order to achieve this, researchers should ensure that an audit trail can be followed by making sure that as many steps as possible are operational.

This study adopted this approach by developing a sound methodology and step-by-step documentation with clear research protocols together with setting out a clear research framework that was applied to each case study. Consequently, the recognised shortfall in reliability in this type of research has been, as far as possible, minimised.

5.5.3 Generalisability

Generalisability has been defined as "the characteristics of the research findings that allow them to be applied to other situations and other populations" (Williams et al., 1998, p. 28). As previously indicated, the unique nature of individual clusters makes it difficult to form generalised theories. Furthermore, the use of a case study research methodology restricts the formulation of generalised theories if the positivistic notion of generalisability is adopted.

An alternative form of generalisation was introduced by Stake (1980) cited in Gomm, Hammersley, and Foster, (2000) where a more intuitive, empirical based on personal experience – interpretation was adopted. This is termed naturalistic generalisation. Gomm et al., (2000) argue that case study research can be a powerful means of building naturalistic generalisation. In order to clarify the use of the term generalisability in qualitative studies, Cronbach (1975) introduced the concepts of a working hypothesis. Cronbach's ideas suggest that there are always factors that are unique thus making generalisation useless (Gomm et al., 2000); and any generalisation is in fact a working hypothesis, not a conclusion (Cronbach, 1975). Therefore, transferability in a working hypothesis depends on the degree of fittingness, where the person wishing to make a judgment of transferability needs information about both contexts (Gomm et al., 2000), rather than simply extrapolating from one context to another. It is recognised that not all contexts of transferability can be known; however, it is reasonable to ascertain sufficient contextual information to provide an appropriate base of information to other researchers interested in transferability (Gomm et al., 2000).

The case studies undertaken in this study aim to provide an appropriate base of information that will facilitate a level of transferability, and hence generalisability. Although a generalised theory will not be formulated, this limitation does not prevent a reinforcement of themes and concepts that have emerged from research in other cluster case studies. The ability to gather the appropriate base of information from which to establish a working hypothesis will have implications for management and policy development, for the clusters in particular and the case study regions in general. Identifying the degree of transferability or similarity between case studies will be integral to this study.

5.6 Chapter Summary

In summary, this chapter clearly outlines the methodological approach adopted for this study. The case study approach taken is justified and the use of data triangulation clearly provides the research with a sound methodological basis.

The focus of the research on identifying structure, strength and complementarity using cluster phenomena as the theoretical base, and analysing the regional case studies separately, will

provide some opportunity for comparability and hence theory building. Combining both qualitative and quantitative approaches to this data analysis provides the most opportunity to extract those factors that might otherwise be obscured by adopting a narrower approach.

Statistical analysis of data is descriptive in nature and provides a depth of understanding that more complex analysis may not recognise. This approach allows both the qualitative and quantitative data to be readily combined to create representative and, to some degree, comparable sets of analyses.

The next chapter contains the results of the secondary data, interviews and the questionnaire for each of the case study regions. It compiles and analyses both qualitative data and quantitative data to provide a clear picture of the similarities and differences between three regional wine and tourism micro-clusters.

Chapter Six Three Regional Case Studies

6.1 Introduction

This chapter discusses and interprets the information collected from three case studies of clusters in three separate regional case studies. The chapter is organised using a question and answer reporting format similar to that outlined by Yin (1994). Using this format, the chapter classifies wine and tourism clusters in each of three regional studies, and describes the characteristics of cluster pre-conditions and passive and active cluster processes of the wine and tourism micro-clusters in each regional study. The chapter then discusses cluster overlap and complementarity in each of these locations.

The regional case studies are examined using qualitative and quantitative data. The qualitative information contained in this chapter is primarily based on the interviews conducted with industry leaders and selected industry representatives through a semi-structured interview format. In addition, quantitative data is derived from a questionnaire that was distributed to industry participants. This data is analysed using descriptive and inferential statistics. This approach, which was outlined in Chapter Five, is used to further distil, from a range of data, those factors that demonstrate significant differences between clusters in each case study area. This approach builds an understanding and insight into the types of wine and tourism clusters in each location.

This chapter is separated into the following sections: Section 6.2 outlines how the case studies are reported; Section 6.3 includes the Ballarat region case study; Section 6.4, the Northern Grampians region case study; Section 6.5, the Bendigo region case study; Section 6.6 provides a summary of each of the case studies, and consolidates the answers to each of the questions raised at the beginning of the chapter. The chapter then provides the basis for subsequent analysis, in particular, in Chapter Seven, where the determinants of clustering captured by place

and industry are examined in detail. In Chapter Eight, the research also uses evidence from Chapters Six and Seven to examine the convergence and overlap hypothesis specified earlier.

6.2 Organising the Case Studies

In order to organise the three case studies conducted in this study, a question and answer reporting format was adopted (Yin, 1994). This reporting format can be considered as an alternative to the traditional narrative often associated with case studies because it presents the same evidence but focuses this by answering a series of questions in a concise way. This approach is particularly useful for multiple case studies. It allows the same questions to be addressed for each case study and provides a clear framework for later cross-case study comparisons.

The study approach is based on the cluster research framework developed in Chapter Four, with the study sites chosen in this research being the wine and tourism clusters in Ballarat, Bendigo and the Northern Grampians regions of Victoria. This framework organises the information obtained through in-depth semi-structured interviews, secondary data and questionnaires to reflect the views of each study area's wine and tourism industries.

6.2.1 The Question

Responses to the following questions were sought for each of the three case studies:

- Which elements are important in classifying regional wine and tourism clusters?
- What cluster pre-conditions are important in these clusters?
- What are the passive processes that exist in these clusters?
- What active processes are evident in these clusters?
- Do these wine and tourism clusters overlap?
- Do these clusters complement each other?

This information provides an assessment of the context and activities of each case, and is used later to categorise the cluster by reference to the level of clustering activity, complementarity and overlap. In these case studies, much of the data used to answer these questions is derived from industry participants through the questionnaire previously described. Each question addresses a particular component or activity of clusters identified in earlier chapters; these are described in the context of the case studies in the following sections.

6.2.2 Cluster Elements

The geographic, economic and social elements of a cluster, and the components of these elements (dimensions), within the research framework, play an important role in describing each cluster. However, the absence of components of these elements does not necessarily equate to a weakness in that cluster. The focus of the study is essentially rural and regional micro-clusters, which may also be expected to have some impact on the role and strength of cluster elements that might not be evident in larger and more established clusters.

The cluster classification outlined earlier provides for a level of judgment in the classification process and this is acceptable given variability in defining clusters. In this study, cluster classifications are determined through qualitative interview data and the judgment of the researcher.

6.2.3 Cluster Pre-conditions

Cluster pre-conditions are those conditions that need to be present to initiate or sustain a cluster. In this research, pre-conditions are implied in the reasons why businesses choose to locate in a particular region. This approach has not been widely reported in the literature, though it was adopted by P. Brown (1999) for his work on the electronics cluster in Christchurch, New Zealand. This approach allows key cluster strengths to be identified in the absence of other data sources; in this study, positive pre-conditions are identified when more that 50% of respondents acknowledge a particular factor influenced their business location decision.

6.2.4 Passive Cluster Processes

The concept of passive cluster processes, which has been described in earlier chapters, is an outcome of business co-location that is not actively sought. In this study, specific questionnaire questions provide a measure of the extent businesses derive goods and services locally, have local customers, and acquire technology through spill-over and skill and knowledge transfer from within the cluster. These are considered the result of co-location and are not specifically the result of the cluster's existence.

6.2.5 Active Cluster Processes

As previously discussed, active cluster processes are of particular interest in cluster research because they help describe the dynamism of clusters. They depend on those benefits gained only through the deliberate decisions made by businesses within the cluster (Brown, P., 1999). Active processes are also a feature of cross cluster activity. These processes typically result from strong relationships between businesses within the cluster and between clusters. In this study, these relationships are interpreted as those that are actively sought and involve competition, collaboration and joint activity between businesses and their cluster. The relationships that businesses have with other local businesses or agencies vary; they may be informal in nature and may become more formal over time. The data collected in this study cover formal and informal relationships.

The cluster literature refers to competition and co-operation as being important for cluster development (Porter, 1998). These factors have the capacity to propel the cluster forward in a dynamic way (Rosenfeld, 1996a). This can be particularly important to rural and regional areas where a group of small businesses might form a micro-cluster and, through collaboration and joint marketing, develop regional identify and recognition, which in turn might make a dynamic cluster.

Trust and co-operative activity are other indicators of active cluster processes; in this study, these are gauged by the degree of sharing aspects of one business with another, and perhaps competing, business. It is through this sharing that skill, knowledge and technology can be

transferred and trust is built. The level of sharing between businesses within the cluster and between clusters has been measured in this study by asking respondents to nominate from a list of aspects of their business those they share with other businesses. This measure is not conclusive, but is indicative of the maturity of the clustering processes present, and provides evidence of the level of synergy and strength the cluster demonstrates.

6.2.6 Cluster Overlap

Cluster overlap as identified by Porter (2001, 2003) is described in Chapter Four; essentially, it is a measure based on industry category, strength of cross industry activities and relationships. According to Porter (2003), both clusters need to demonstrate industry overlap through undertaking the same activity, or having some of the same components and sectors contributing to the cluster. This reciprocity of cluster overlap is an important factor when determining cluster overlap in relation to this study.

6.2.7 Cluster Complementarity

The study uses the concept of cluster complementarity which is gauged through the importance of reputation, regional recognition and cross cluster relationships to cluster members. These are important cluster complementarities and relate to the marketing externalities identified by P. Brown (1999).

The data collected in this study reflect the level of complementarity achieved, by identifying whether businesses have working relationships with other businesses and if these are ongoing, seasonal or infrequent. The study determines that if more than 50% of the businesses surveyed indicate they have a working relationship with businesses in the co-located cluster, then these clusters are regarded as displaying *active complementarity*. These working relationships are actively sought by most businesses to gain benefit from each other. If, on the other hand, fewer than 50% but greater that 25% of businesses surveyed indicated a working relationship with another business in the co-located cluster, these clusters are described as displaying *passive complementarity*; that is to say, this complementarity may be a matter of chance rather than actively sought. These classifications have been made for determining complementarity between clusters in the absence of other methods appropriate to this study.

Adopting a question and answer approach for reporting the three regional case studies, and directing the questions at these cluster characteristics, means that cluster processes for each location and for each cluster can be identified using common themes. Therefore, this approach allows for exploration of the relative impact of the way particular wine and tourism clusters relate to each other, and for some comparisons to be drawn. The remainder of this chapter reports on these case studies.

6.3 Case Study One: Ballarat Wine and Tourism Clusters

6.3.1 Context

The contributions that wine and tourism businesses make to the Ballarat region are varied. Tourism in the Ballarat region is predominately based around gold heritage. It has developed as Australia's premier heritage region and is dominated by the historical gold mining settlement of Sovereign Hill (Erickson & Brickley, 2001; Hollick, 2001). Ballarat is part of the larger Goldfields product region identified by Tourism Victoria. Many of the region's tourist attractions and businesses are linked by this theme. More recently, Ballarat has begun to diversify its tourism industry and link with other Victorian tourism areas. Consequently, while Ballarat's product strengths traditionally were identified with history and heritage (Roy Morgan, 2001), more recently they have expanded to include arts and culture, festivals and events, and parks and gardens. This has meant that an increasing and diverse range of attractions, activities and services are becoming engaged, at some level, in tourism (Essential Economics, 2001).

Estimates of the economic benefit derived from domestic and international tourists suggests they currently spend over $260 million in Ballarat, with tourism now the second largest employer in the region with 2,000 equivalent full time employees (City of Ballarat, 2002). In recognition of the importance of tourism to the region's economy, the City of Ballarat has made a commitment to its continued development through the establishment and support of Ballarat Tourism. This support is from all levels of government and provides strong top-down strategies for the growth of this regional industry (Tourism Victoria, 2002b).

By contrast, the Ballarat wine industry is a small and relatively underdeveloped regional activity based largely on hobby and part time endeavours. The region's early wine production was small; it began at Dead Horse Gully in 1859 (Ward, 1980) with the production of a high quality cool climate wine. The Ballarat region did not continue to develop as a wine producer until recently when its reputation as a producer of quality cool climate wines began to re-emerge (Ballarat and District Vignerons Association, 2000b).

Despite the lack of data about the importance of the wine industry in the Ballarat region, estimates suggest a workforce that approximates 150 (equivalent) full time jobs (Essential Economics, 2001). The multiplier effect of the industry into the service sector expands this employment to 223 (equivalent) full time jobs (Ballarat and District Vignerons Association, 2000b). Tourism and/or other service sectors have become important components in the development of this small regional industry (Ballarat and District Vignerons Association, 2000a; Tourism Victoria, 1998). Projections on the expansion of the industry suggest its economic significance in the Ballarat region will approximate to that of the cultural and recreational sectors by 2010 (Ballarat and Districts Vignerons Association, 2000a; Essential Economics, 2001).

The following section (6.3.2) reports on the semi-structured interviews conducted in this study, which are described in Chapter Five and Appendix A. These interviews explore the importance of geographic, economic and social elements to the Ballarat wine and tourism industries. This information provides the basis for classifying each industry as a cluster type, as described in Chapter Four and represented in Table 4.3. The classification uses qualitative data and is indicative of how those involved in, or having knowledge of, each industry interpret its characteristics. This classification allows some assessment to be made about the strengths and structure of these clusters.

6.3.2 Cluster Classification

6.3.2.1 Ballarat tourism cluster

The strength of cluster elements within the tourism industry in the Ballarat study region is identified in this section, which also indicates those dimensions which are considered of particular importance to the industry representatives interviewed. This analysis provides an indication of the strength and structure of the Ballarat tourism cluster.

Geographic Dimensions

Ballarat is approximately a one hour drive by freeway from Melbourne, the main tourism market. All those interviewed for this case study agreed the major geographic advantage to the

regional tourism industry was location and, in particular, proximity to Melbourne. Other geographic attributes identified included the existing infrastructure and the landscape.

Most tourism businesses are located within the city of Ballarat, and many are focused around the central player, Sovereign Hill. The Ballarat tourism database comprised 162 operators in 2000 (Hollick, 2001). The majority of interviewees indicated that a few major players dominate the industry. This would suggest a cluster made up of several major players and a large number of small businesses. Sovereign Hill attracts large numbers of day-trippers to Ballarat (Bureau of Tourism Research, 2000). The majority of those interviewed indicated that for other tourism businesses to benefit from these visitors, they need to be located near the major attractions.

No particular geographic constraints to the tourism industry were identified in the interviews. However, one respondent suggested that the industry was too concentrated and that tourist infrastructure within the region was lacking, commenting that "…if we could more easily distribute visitors across the region by extending the tram or other types of tourist infrastructure more businesses would benefit".

Economic dimensions

A number of economic dimensions of Ballarat tourism are recognised. All of those interviewed confirm that tourism in Ballarat is a highly significant regional industry and, in cluster terms, has critical mass. The makeup of the tourism industry is difficult to quantify but includes businesses engaged in a range of sectors.

The breadth of the industry was quantified by the interviewees who indicated that a range of sectors such as accommodation, restaurants, major events and the retail sector, make up the industry; however, according to several of those interviewed, retail businesses were not generally aware of their role in tourism. The presence and activities of Ballarat Tourism, Events Ballarat and other tourism associations in the Ballarat region support the horizontal integration of the industry by facilitating cross sector initiatives. Most of those interviewed indicated several different business types produce a range of products that are important to the tourism industry, and furthermore that these sectors do engage in collaboration and shared initiatives. This suggests some developed horizontal integration in the tourism industry supporting a broad cluster.

Vertical integration, that is regional production chains and supply networks, appears less well recognised or developed. The interviewees indicated that tourism businesses obtain most general inputs locally; these are primarily goods, services and promotional materials. However, specialist services and education and training, were not identified as being locally supplied by the majority of those interviewed. In terms of local demand for tourism product, most suggested this was limited. From the interviews, vertical integration is unclear but there is evidence of some supply chain development.

Those interviewed indicated that networking between industry participants was *well developed*, mostly formalised through the tourism associations and local government, and involves joint promotional activity. The interviews provided little evidence of networking with other industries or sectors independent of these initiatives. Most of those interviewed believe that informal networking needs to be nurtured, being important to the future growth of tourism in the region. As one interviewee commented: "it would be great if small tourism businesses worked together, but I do not see much of this happening".

Innovation is a dimension indicating cluster strength, and in the Ballarat region study innovation in the tourism cluster was regarded by almost all of those interviewed as *good* to *adequate*, thereby influencing the competitiveness of the region. This is characterised by Sovereign Hill and the Gold Museum complex which are recognised as innovative within the industry, with continued development of new displays and exhibitions such as the sound and light show and range of interactive displays.

Social dimensions

A range of social dimensions were identified in the interviews as important to the Ballarat tourism industry. Of particular importance was the gold history of Ballarat and the heritage buildings it created. Ballarat's competitiveness as a tourist destination was largely seen as dependent on the development of these attributes. However, some comments were made that these are not seen as attributes for all tourism developments and they have in some cases limited tourism investment in attractions that would not fit with this theme. "We need to make Ballarat more attractive for a wider range of tourism developments, not just those that fit the heritage overlay … if the industry is to develop", commented one interviewee. When asked if there were

any local industry icons, none were identified. Several of those interviewed drew attention to a lack of icon personalities or entrepreneurs, suggesting that this limited tourism development.

When asked why tourism businesses established in the region, most of those interviewed indicated lifestyle and social infrastructure as the most significant reasons. This is reflected by recent research undertaken by the Victorian Economic Chamber of Commerce and Industry which ranked lifestyle as the second most important factor in choosing to locate a business in regional Victoria (VECCI, 2001). While no clear picture of disincentives to new entrants were identified in the interviews, a lack of facilities (particularly 5 star accommodation), climate and the continued focus on history, were identified by some as having a negative impact on the types of new entrants.

The level of knowledge and skill sharing within the industry was not clearly identified, and many of those interviewed were unsure of this dimension. Knowledge transfer within the region was identified by half of those interviewed, and with other regions by more than half. This suggests that the dynamics of the cluster may not be developed to the extent of creating strong cohesions between cluster members. Together with a relatively mixed response to the level of integration with educational facilities in the region, this indicates the knowledge and skill sharing aspects of clustering may not be well developed. However, it was agreed by participants that most knowledge was transferred through informal networks.

A *latent* cluster

Based on the information gathered, this cluster displays the following characteristics:

- geographically dependent, dense, and focused
- economically significant with critical mass, breadth and some potential to be deep; has developed formal networks and is innovative
- socially strong in terms of history and lifestyle dimensions; and has a developed social infrastructure
- limited by the lack of information flows and knowledge transfer.

These characteristics describe a *latent* cluster which has the attributes of a critical mass sufficient to gain benefits from clustering, but has an insufficient level of interaction and

information flow to truly benefit from co-location. In addition, businesses do not exploit the potential benefits of clusters through closer relationships with other local organisations. This type of cluster often attracts cluster development initiatives in order to facilitate cluster activity.

6.3.2.2 Ballarat wine cluster

The Ballarat wine cluster is different to the Ballarat tourism cluster. The interviews and other data collected clearly indicate that geographic, social and, to a much lesser extent, economic elements are important in the wine cluster.

Geographic dimensions

The cluster is considered geographically dependent on natural resources, particularly climate, water availability and, to a lesser extent, land availability. Lack of industry concentration and recognition as a wine region were identified as the main geographic constraints by most of those interviewed. Until recently, there was one major wine maker in the region – Yellowglen[7] – which dominates both economically and in terms of regional identity. The remainder of the wine businesses are mostly small and micro-businesses that are dispersed over the region.

Economic dimensions

The economic importance of the wine industry to Ballarat's regional economy is small, having limited economic significance in the region (Ballarat and District Vignerons Association, 2000b). Because of this it lacks critical mass.

There is some evidence of horizontal integration. Those interviewed indicated that demand for local grapes, and on-selling to local wine makers, suggests that some cross industry activity occurs. In addition, most of the wine that is locally grown and produced is also sold locally (Ballarat and Districts Vignerons Association, 2000b). Most of these local sales are from small operators; however, the considerable wine-making capacity of Yellowglen is predominantly derived from grapes sourced outside the region, with the majority of this wine sold outside the

[7] Yellowglen is a part of the Berringer Blass Wine Estates owned by Fosters Brewing Group. During the final stages of this study, an announcement by the parent company that Yellowglen was to close was made in June 2004.

region[8]. Characteristics of the wine industry previously presented suggest that cross links between wine growers and wine makers are common; however, in this particular case study, a lack of critical mass restricts the expansion of the cluster. The interviews revealed that the Ballarat wine industry is seen by those involved as emerging, and many of the producers want to establish their own wine production facilities, often on a small scale. For these reasons, vertical integration in the form of supply chain development is undeveloped. Many of the more general inputs are purchased locally; however, specialist wine inputs are less likely to be purchased locally, primarily because they are not readily available (Ballarat and Districts Vignerons Association, 2000b).

The lack of critical mass also influences network development, although there is a strong industry association that actively promotes networking and innovation through regular field days and meetings. This networking has resulted in joint promotional and marketing activities which, with the exception of wine-tourism activities, are mostly undertaken by individuals and not the cluster as a whole. Wine-tourism promotion has been largely encouraged by the tourism agencies and individuals, which has resulted in some joint activities and regional promotions.

The majority of those interviewed indicated that innovation was *adequate* to *very good*. This innovative capacity was regarded as coming both from within the region and from individuals, although it was not considered to be an influence on the competitiveness of the region.

The interviews clearly showed the industry believes that the growth of the cluster is restricted by limited industry concentration, the dominance of small businesses and the lack of iconic entrepreneurs. According to one of those interviewed the limited level of growth "reflects the low level of recognition, innovation and product development in the region".

Social dimensions

Similarly with the Ballarat tourism cluster, the social dimensions identified by those interviewed for this cluster included social infrastructure and lifestyle; these were seen as strong reasons to be involved in the wine industry in the Ballarat region. Knowledge and skill sharing were seen to be *adequate* to *well developed* by most interviewed and considered to be predominantly

[8] At Yellowglen, capacity exceeds production by approximately ten times due to the winery processing grapes form outside the region to sell outside the region.

achieved by informal means, often generated through the industry association's activities. However, the level of knowledge flow between regions was not regarded as high.

A *wannabe* cluster

The elements and dimensions reported thus far suggest a cluster that lacks critical mass, which is reflected in how this cluster performs. Furthermore, regardless of the strength of the geographic and social dimensions, the lack of critical mass plays a major part in classifying the cluster. In this study, the characteristics identified which determine the type of cluster include:

- geographic dependence on natural resources and a central player
- lack of critical mass and economic significance, and limited supply chain development
- local demand and horizontal integration are present, but lack of reputation limits other markets
- innovation occurs but is limited, as is and knowledge flow
- social dimensions, particularly lifestyle and informal relationships, are becoming more developed.

As a consequence, and because the cluster is limited by size, it might not normally be identifiable as a cluster. However, because there is some evidence of clustering activity through the association's strategy, for the purpose of this study, the Ballarat wine cluster is classified as a *wannabe* cluster (Rosenfeld, 1997).

This analysis of interviews and secondary data has clearly identified that the Ballarat wine and tourism clusters show particular characteristics, some of which are common to both clusters. The following section (6.3.3) uses these classifications and relates them to cluster pre-conditions, which are again framed in the context of the three cluster elements. The remainder of the analysis is presented as follows: Section 6.3.4 and 6.3.5 where passive and active cluster processes are identified, Section 6.3.6 where cluster overlap is determined, and Section 6.3.7 where the complementarity of these co-located clusters is explored. Finally, a cluster complementarity map is presented in Section 6.3.8.

The remainder of the Ballarat regional study is based on the results of the questionnaire distributed to industry participants. The data collected are analysed both qualitatively and

quantitatively using descriptive and inferential statistics to identify differences between each cluster. The questionnaire is provided in Appendix B.

6.3.3 Cluster Pre-conditions

The pre-conditions influencing the decisions made by a business to locate in a particular place are influenced by the nature of the industry and business strategy. The responses to the questionnaire indicated that more than half of the businesses surveyed (55% of wine businesses and 65% of tourism) in the Ballarat study are owner-operated businesses, with turnovers less than $50,000 per annum (70% of wine businesses and 57% of tourism). Business strategies varied; the majority of wine businesses (60%) indicated a growth strategy and 15% indicated an innovation strategy, compared to less than 40% of tourism businesses indicating a growth strategy and 30% indicating an innovation strategy. This suggests that wine businesses are focused on growth, and tourism businesses are concerned with both innovation and growth. Analysis of the factors identified in the questionnaire that contribute to the location decision of businesses, enable pre-conditions for the development of these clusters to be postulated.

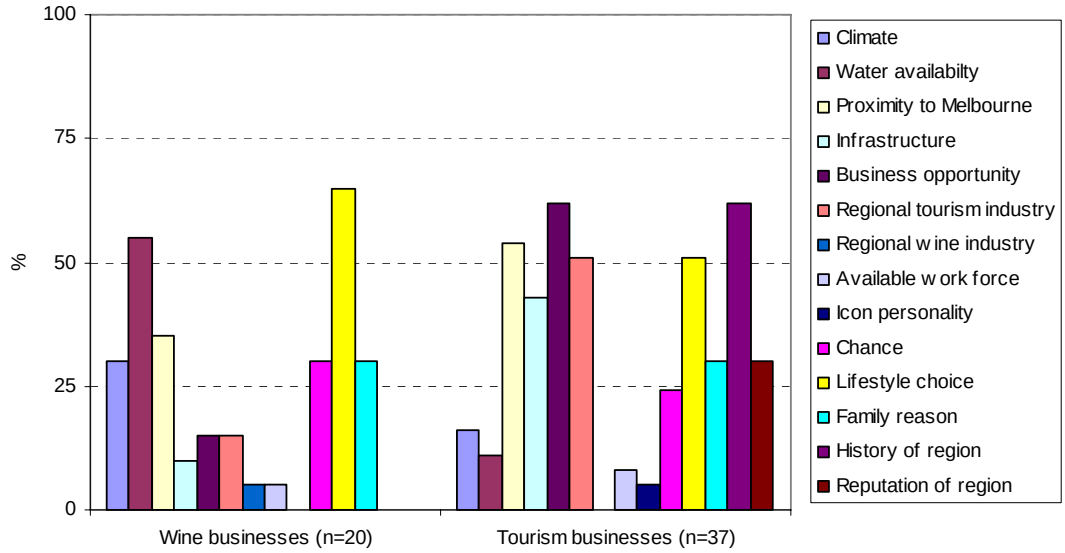
6.3.3.1 Location decision

Businesses were asked to nominate the factors that influenced their decision to locate their business in the Ballarat region; Figure 6.1[9] summarises the responses. In the case of the wine cluster, it is clearly shown that lifestyle choice and water availability are the pre-conditions nominated by the majority of respondents. This indicates that, for wine businesses, it is generally geographic factors and social factors, rather than economic factors that are more important.

In contrast to the wine cluster, businesses in the tourism cluster show a wide range of reasons for locating in the Ballarat region. These pre-conditions are economic (business opportunity and regional tourism industry), social (lifestyle and history) and geographic (proximity to Melbourne). These factors, when compared to the pre-conditions associated with wine cluster, reflect the comparative strength of the tourism cluster in Ballarat.

[9] Pre-conditions are determined if more than 50% of respondents indicate this factor influenced their location decision.

Figure 6. 1 Percentage of Ballarat wine and tourism businesses indicating pre- conditions were a major influence on location decision



6.3.4 Passive Cluster Processes

As previously described, passive cluster processes include locally supplied goods and services, local demand and skill and knowledge transfer. Questionnaire respondents were asked to indicate which inputs they purchased locally and which products and services they sold locally, the types of skill and knowledge they adopted, and the sources of skills and knowledge.

6.3.4.1 Local supply and demand

The businesses surveyed indicated that most wine and tourism businesses purchased general goods and services (inputs) locally, but fewer businesses purchased specialist goods and services locally. A notable difference in responses between wine and tourism businesses was detected regarding the importance of locally supplied goods and services to business success. Wine businesses place less importance on locally supplied goods and services (35% indicated *very important* to *extremely important*) compared to tourism businesses, where 73% of those surveyed regarded locally supplied goods to be *very important* to *extremely important* for their business success.

When asked about selling goods and services on the local market, 75% of wine businesses indicated they sold goods or services locally, whereas fewer tourism businesses (41%) indicated they did so. This suggests local demand is stronger in the wine cluster.

6.3.4.2 Skill and knowledge transfer

The questionnaire presented several statements about the types of knowledge and skills businesses might obtain from other regional businesses. Respondents were asked to indicate their level of agreement with these statements[10]. An analysis of the responses showed no significant differences between wine and tourism businesses (Table 6.1). The first column of the table represents the means score for the wine businesses surveyed, the second column the means score for tourism businesses, and the final column is the probability that the difference between the means is a chance event.[11] The means of describing the results of these analyses is by comparing absolute values for each cluster, and by recognising that scores less than 2.5 indicate that factor is of some importance whereas and mean score greater than 2.5 suggesting the factor of little importance; that is, the lower the score the more important the factor is. For example, in this instance (Table 6.1), the lower the mean score (less than 2.5), the more important the type of skill and knowledge is considered to be. The interpretation of data also considers differences between cluster types, and determines if these differences are significant and, if so, to what level of significance (p-value). A detained description of the statistics used in this section of the study has been described in Chapter Five (section 5.4.4).

Table 6.1 Types of business knowledge and skill gained from other regional businesses by Ballarat wine and tourism businesses.

We recognize and adopt….	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Operational improvements	2.60	2.68	0.856
Technical improvements	2.55	2.84	0.651
New marketing strategies	2.75	2.89	0.375
Improvements in distribution	2.90	3.22	0.611
Improvements in business strategies	2.75	2.62	0.076*

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level.

[10] Five point Likert scale
[11] ANOVA (Analysis of Variance) was used to examine the difference. SPSS Version 11.1 was the statistical package used.

The data represented in Table 6.1 shows there are no mean scores are less than 2.5, suggesting these particular factors are not considered important to either the wine or tourism clusters. However, comparing the clusters (final column), there is a significant difference between wine and tourism clusters regarding the recognition and adoption of improvements in business strategy from other regional businesses. Whilst this factor is not seen of particular importance to the businesses overall, it could be considered to be significantly more likely to be important to businesses in the tourism cluster than those in the wine cluster. This analysis suggests that adoption of new skills and knowledge in these clusters may indeed be limited. This method of describing the data contained in this table remains consistent throughout this thesis.

The questionnaire identified both wine and tourism businesses did regard certain sources of skill and knowledge as important to their businesses. Furthermore, it identified significant differences in the important sources of skill and knowledge between wine and tourism businesses. The results of a series of questions on the importance of a number of these factors to wine and tourism businesses is summarised in Table 6.2.

Table 6.2 Sources of skill and knowledge for Ballarat wine and tourism businesses.

Sources of skill and knowledge development	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Other related businesses within the region	1.75	2.05	0.519
Other related businesses outside the region	2.05	2.86	0.075*
Tourism businesses within the region	2.37		
Wine businesses within the region		3.70	0.003***
Individuals within the region	2.05	2.78	0.096*
Industry associations	1.75	2.46	0.029**
Local education and training institutions	2.75	3.19	0.276

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

The data indicates that wine businesses regard all of the listed sources of these skills and knowledge as important for their businesses (the lower the mean score the more important they are); of particular importance are other related businesses in the region and industry associations. Tourism businesses also regarded related regional businesses as important, suggesting that transfer of skill and knowledge occur between businesses within the clusters. Local education and training were seen of no important by both wine and tourism businesses (mean scores greater that 2.5), suggesting these sources of skill and knowledge are not well developed. Significant differences appear between the clusters, indicating that wine businesses regard other related businesses within and outside the region, tourism businesses and the

industry association as more important sources of skill and knowledge than do the tourism businesses. This is perhaps an indication of the nature of the relationship between these two regional clusters and also suggests that the transfer of skill and knowledge is more developed and considered more important in the wine cluster.

The passive cluster processes identified and measured in this study of Ballarat wine and tourism clusters indicates the tourism cluster has stronger regional ties through supply chains than the less developed wine cluster; however, the wine cluster appears to have a greater local demand. Furthermore, it would be expected that the larger the cluster the more developed the level of knowledge and skill transfer. This appears not to be the case in the Ballarat region case study where the less developed wine cluster shows a greater propensity for knowledge and skill transfer, and places greater importance on these externalities than does the tourism cluster.

6.3.5 Active Cluster Processes

Identifying inter-relationships between businesses in a cluster is a means of assessing active cluster processes. Joint activity, competition, collaboration and sharing and trust are elements that have been used to indicate the development of these processes in this study. The questionnaire posed several questions on the relationships that businesses have with other local businesses or agencies in the region and the basis of these relationships.

6.3.5.1 Joint activity and working together

A significant majority of businesses surveyed, 80% of wine businesses and 76% of tourism businesses, indicated they engaged in joint activities with other regional businesses. Data on working relationships that businesses had with other businesses and agencies in the region is provided in Table 6.3. These data show that businesses generally do not see themselves as working very closely with particular agencies in the areas of education and economic development (mean scores greater than 2.9). However, tourism businesses indicated they do work closely with regional suppliers (mean score of 2.08), and significantly more closely than wine businesses indicated.

Table 6.3 Working relationships that Ballarat wine and tourism businesses have with other regional businesses and agencies.

Generally we work closely with …	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Other regional businesses	2.60	2.41	0.581
Regional suppliers	2.75	2.08	0.051*
Education and research bodies	3.05	2.92	0.735
Economic development agencies	3.20	3.00	0.574
Tourism businesses	2.75	2.33	0.943

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level

These data show that generally businesses in these clusters are more likely to have working relationships with other regional businesses than with education and training bodies and economic development agencies. This would suggest these clusters lack key linkages with these agencies which may restrict cluster processes (Jacobs, 2000; Rosenfeld, 2002a).

6.3.5.2 Competition and collaboration

The competitiveness of Ballarat wine and tourism businesses varies, with some significant difference particularly in terms of seeing other businesses as important to their success. A number of statements relating to how businesses regarding other similar businesses in the region were presented to the respondents; the results are summarised in Table 6.4.

Table 6. 4 Regard that Ballarat wine and tourism businesses have for other similar businesses

	Wine businesses#	*Tourism businesses#*	*ANOVA p-value*
We see these businesses as our direct competitors	3.40	3.41	0.989
We see these businesses as important to the success of our business	2.05	2.68	0.095*
We are aware of what these other businesses are doing	2.20	2.19	0.967
We make every effort to set our standards higher than these other businesses	2.15	1.97	0.555
We work closely with these other businesses	2.40	2.84	0.155
We are not influenced by what these other businesses are doing	3.45	3.03	0.233

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level

These data show that wine and tourism businesses do not regard other similar businesses as direct competitors (mean scores 3.4). However, they do make efforts to set higher standards, and

are influenced and aware of what these other businesses are doing (mean scores are less than 2.5). There is little difference between wine and tourism clusters in this data. The exception being that wine businesses see other similar businesses as important to their success, whilst tourism businesses so not, and this difference is significant at the 90% confidence level.

Ballarat wine and tourism strategy plans encourage businesses to operate collaboratively rather than competitively (Ballarat and District Vignerons Association, 2000a; Pearlman, Molloy, & Harvey, 1995). Collaboration between businesses was examined by asking respondents how important they felt collaboration was for a number of aspects of their business, with the results showing some factors as more important than others. Table 6.5 summarises the responses to this question.

Table 6. 5 Importance of collaboration with other businesses to Ballarat's wine and tourism businesses

Collaboration Factors	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Access to labour	3.71	3.91	0.601
Selling intermediate goods to other businesses	3.13	4.19	0.005***
Buying goods from other businesses	2.94	3.11	0.675
Providing access to new technology	2.56	3.33	0.045**
Increasing market demand	2.06	2.27	0.619
Finding new customers	2.35	1.94	0.282
Enhancing reputation	2.00	2.20	0.630
Improving innovation and new product development	2.88	2.72	0.708
Joint trade fare participation	2.81	3.24	0.371
Joint marketing	2.44	2.91	0.303
Accessing new markets	2.69	2.97	0.545
Accessing export markets	3.38	4.03	0.175
Joint market research	2.88	3.42	0.248
Inter-business referrals to other businesses	3.00	2.38	0.134
Inter-business referrals to your business	2.94	2.03	0.022**

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

These data indicate that, for a number of factors, both wine and tourism businesses regard collaboration as important for their business (mean scores of less than 2.5). These include increasing market demand, finding new customers and enhancing reputation (the lower the mean score the more important). However, neither wine or tourism businesses regard selling intermediate goods to other businesses as important (mean score greater than 3); wine businesses view it as less unimportant than tourism businesses. Accessing new technology as a benefit of collaboration is significantly more important to wine businesses than tourism businesses. In relation to collaboration for inter-business referrals, tourism businesses regard

this as significantly more important (at a 95% confidence level) when compared to wine businesses, who do not regard this factor as important (mean score greater 2.5)

These data suggest that the wine businesses may be more collaborative for activities associated with business improvements, while tourism businesses are more likely to see collaboration as more important for increasing market share. It is commonly thought that cluster benefits, such as accessing labour, enhancing export and buying and selling intermediate goods, are important outcomes of collaboration. In this instance, collaboration in these areas appear unimportant to wine and tourism businesses, which suggests these benefits associated with active cluster processes are not realised in these clusters.

6.3.5.3 Sharing and trust

The level of sharing between businesses was determined by asking respondents to nominate from a list those activities they share with other similar businesses. The data obtained, summarised in Table 6.6, show some significant differences between the percentages of wine and tourism businesses that engage in sharing activities with other businesses.

Table 6. 6 Percentage of Ballarat wine and tourism businesses that share businesses activities

Activities that businesses share with other similar businesses	*Wine businesses %*	*Tourism businesses%*	*ANOVA p-value*
Accommodation		43	
Production capacity	10		
Venues	30	8	0.031**
Equipment	40	19	0.087*
Labour	25	5	0.032**
Marketing	30	38	0.562
Promotions	45	32	0.357
Expertise	30	43	0.336
Knowledge	85	46	0.004***
Innovation	5	32	0.018**

Note. Wine businesses n=20; Tourism businesses n=37
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

These data indicate knowledge is shared by a significantly greater percentage of wine businesses than of tourism businesses, and is the most shared aspect of their businesses. Venues and labour are also shared more between wine businesses. A notable exception is innovation, with a significantly greater percentage of tourism businesses indicating they share innovation. This finding supports the importance of innovation to this cluster that was identified in the interviews.

The level of active cluster processes within these two clusters suggests that the larger and more developed tourism cluster works more closely with local suppliers, but competitive behaviours are mixed. The smaller wine cluster appears to be more developed in terms of collaborative and shared activities.

6.3.6 Cluster Overlap

The interpretation and measurement of cluster overlap in this study relates to activities shared by both clusters, the focus being on wine-tourism. Of the businesses surveyed (n=57), 17.5% engaged in wine businesses, 56% in tourism and 17.5% in wine-tourism[12]. Industry association membership also assumes some active involvement in that industry and is another indicator of cluster overlap. In line with the industry data, 16% of businesses surveyed were members of both a tourism association and a wine association, and 17.5% were involved in cellar door activities. However, despite these factors, cluster overlap is not evident between these clusters. This finding is based on the degree of overlap – more than 20% needs to be clearly demonstrated by both clusters – which Porter (2003) contends is required.

6.3.7 Complementarity between Wine and Tourism Clusters

The final part of this case study relates to cluster complementarity. Identifying factors important to the success of businesses, and the intra-cluster activities businesses in each of the clusters might engage in, provides an indication of the strength of complementarily.

6.3.7.1 Cluster growth factors

Cluster complementarity, and its interpretation in this study, has been described earlier. From questionnaire data, the complementarity between clusters is identified using those active cluster processes that rely on well developed relationships between clusters. These include the importance of a reputation and regional recognition which require joint activity to establish and strengthen. In addition, the importance of an active industry (or cluster) on the growth of a business suggests a level of joint activity or interaction; for this to occur, it requires businesses in the cluster to create benefits for the complementary cluster. For example, if the majority of

[12] Seven % indicated they were involved in some other industry or business

wine businesses surveyed indicate the existence of an active tourism industry is important for their growth, this study assumes there is a level of complementarity between these clusters.

Table 6.7 shows the percentage of businesses surveyed that see a number of complementary cluster factors as important for growth. In fact, the data indicate that most wine and tourism businesses do see an active tourism cluster, regional recognition and reputation as important for growth. However, a significant difference exists between these clusters, with fewer tourism businesses (30%) regarding an active wine cluster as important for business growth. This factor also reflects the absence of cluster overlap. In summary, the data suggest that complementarity between clusters occurs but may be more developed in the wine cluster than in the tourism cluster.

Table 6. 7 Complementarity factors important to Ballarat wine and tourism businesses for business growth

Factors important for business growth	*Wine businesses %*	*Tourism businesses %*	*ANOVA p-value*
Reputation	70	81	0.358
Regional recognition	80	68	0.328
Active wine industry	80	30	0.000***
Active tourism industry	75	84	0.432

Note. Wine businesses n=20; Tourism businesses n=37
*** p-value of 0.01 or less is a significant difference at a 99% confidence level

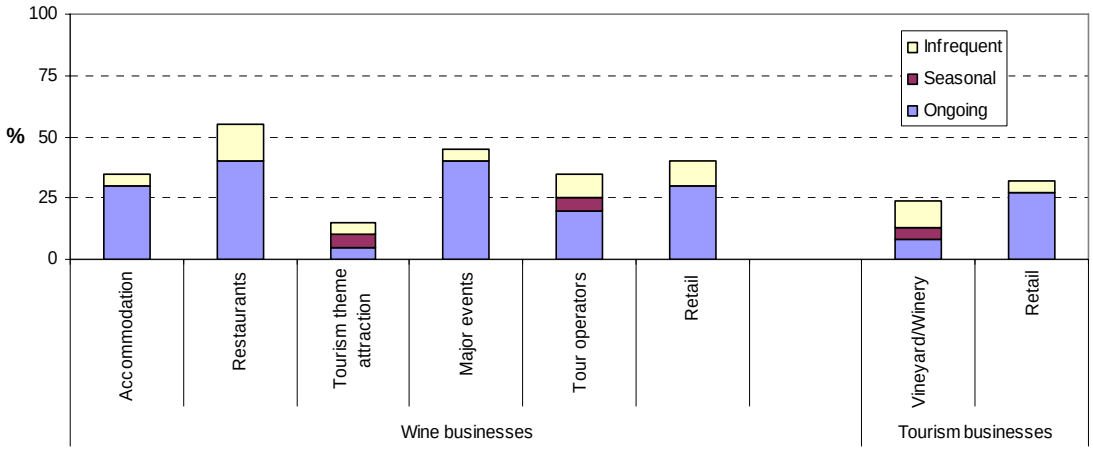
6.3.7.2 Intra-cluster activity

According to the assumption outlined earlier, evidence of active cluster complementarity occurs if more than 50% of businesses in one cluster engaged in activities with businesses in another cluster. In order to gain an indication of complementarity between wine businesses and tourism businesses, respondents were asked which type(s) of joint activity they engaged in with particular businesses that may be involved in a complementary cluster. Figure 6.2 shows these data and the percentage of businesses engaged in ongoing, seasonal or infrequent joint activities with these other businesses.

More than 50% of wine businesses surveyed undertake joint activity with local restaurants thus demonstrating active complementarity. In addition, wine businesses indicating between 25%-50% involvement are described as being passively complementary; this appears to be the case with several types of businesses in the tourism cluster, including accommodation, retail, major events and tour operators. However, when compared to the complementary joint activity of tourism businesses to vineyards and wineries, fewer than 25% of businesses indicate a relationship, therefore suggesting little complementarity with the wine cluster. Using this scale,

passive complementarity also exists between the wine and tourism businesses and the retail sector.

Figure 6. 2 Joint activity between Ballarat's wine and tourism businesses



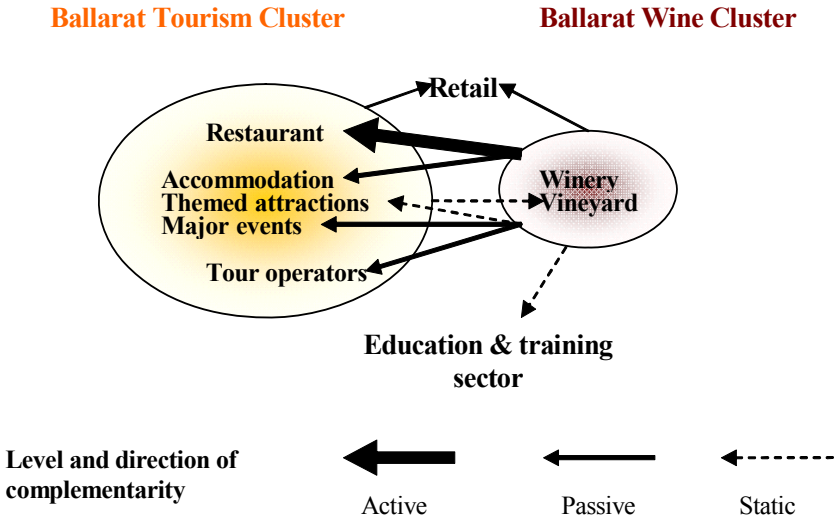
Note. Wine businesses n=20; Tourism businesses n=37

6.3.8 Cluster Complementarity Map

Drawing these data together by representing this information in the form of a complementarity map provides a visual appreciation of the nature of these clusters and the strengths of their relationships and complementarity. There are four key components included in this map. Firstly, the map represents the comparative size of these clusters. Secondly, the map identifies the strength of relationships between business types within the clusters by positioning those business types with stronger relationships closer to the centre or core of the cluster. Thirdly, the maps show the strength and direction of the relationships between clusters; and finally, the relationship with key areas of cluster development: education and training, and the retail sector. This cluster relationship map is shown in Figure 6.3.

The map illustrates that the Ballarat wine cluster displays active complementarity with the tourism cluster, particularly restaurants, and passive complementarity with major events, accommodation and tour operators. The complementarity with major theme attractions is very weak or inactive, which is an interesting finding given the importance of these attractions to the region's tourism industry. Conversely, the tourism cluster shows little complementarity with businesses in the wine cluster.

Figure 6. 3 Ballarat wine and tourism cluster complementarity map



Both the wine and tourism clusters show passive complementarity with retail businesses which may or may not form part of their cluster. The lack of relationships with local education and training institutions indicate static complementarity with this sector. Implications for this factor in terms of the development of cluster strength and structure would suggest that the wine cluster benefits from its relationship with the tourism cluster, and provides a level of dynamism and growth; whereas the tourism cluster is little affected by the wine cluster in the Ballarat case study.

6.4 Case Study Two: Northern Grampians Wine and Tourism Clusters

6.4.1 Context

The Grampians is one of Tourism Victoria's thirteen product regions and the Northern Grampians area is central to this product region. Major population centres in the study area include the major regional centres of Stawell and Ararat, both of which have a range of accommodation, tourist attractions and events. Halls Gap, a small tourist based village, is the primary accommodation base for the Grampians National Park, and Great Western is promoted as a wine village due largely to the established and historic Seppelts and Bests wineries. The surrounding small towns mostly service local farming communities and residents.

From a tourism perspective, the region is dominated by the Grampians National Park. This is the second largest national park in Victoria, ranked number one by tourists for adventure activities, recreation and sport, and ranked second for natural attractions (Erickson & Brickley, 2001). The park draws in excess of 1.2 million visitors annually, with an estimated expenditure in the region by both domestic and international visitors of $214 million (Tourism Victoria, 2001). In addition to nature based tourism, specific icon events, such as the Easter Stawell Gift, (an annual amateur athletics competition) and a gourmet food and wine festival, attract large numbers of visitors to the region (Erickson & Brickley, 2001; Tourism Victoria, 2001). The region's strong gold heritage, and more its recent wine heritage, is providing additional opportunities to develop tourist attractions in the region (Northern Grampians Shire Council, 2003). However, it is the unique geography of the region that provides significant natural advantage to tourism. Although tourism is an economically significant regional industry, there are some indications that this industry is beginning to stagnate and is perhaps declining, based on accommodation data which indicates that occupancy rates are falling. This reflects a decline in tourism visitation of approximately 21% (Tourism Victoria, 2001).

The wine industry on the other hand is growing and is increasingly adding to the region's economy (Kronos Corporate, 2002). The Grampians wine region (a recognised Geographic Indication region) was the birthplace of the Australian sparkling wine industry in the 1860s (Dunstan, 1994) and its wine history is well established. A number of the historic wineries still

operate today (Benwell, 1978; Halliday, 1982). The industry has fluctuated over time but today the Grampians wine region includes Great Western, Grampians and Ararat vineyards and wineries with more than 800 hectares under vines (Kronos Corporate, 2002).

With the recent upturn in Australia's wine industry, the region has seen the influx of new vineyard and boutique wineries. For some of these boutique operations, the industry is becoming more reliant on the tourism market as evidenced by the increasing numbers of cellar door facilities (Tourism Victoria, 1998). This increased activity has been bolstered by the success of the wine industry in the neighbouring Pyrenees wine region. Together, these wine regions are expected to create an additional 75 direct jobs in vineyards and wineries, and an additional 53 jobs in the broader community between 2003 and 2011 (Kronos Corporate, 2002). Growth projections are expected to increase the region's retail wine production by $135m per annum to $208m per annum for the region in 2011 (Kronos Corporate, 2002). Although there is limited data specific to the growth of the Grampians wine region alone, a proportion of this growth will occur in this region. In addition, the recent establishment of the Australian College of Wine at Ararat[13] is likely to encourage this growth by providing both production and education facilities (Northern Grampians Shire Council, 2003).

This brief overview of the Northern Grampians tourism and wine industries show they are both significant regional industries. As in the previous case study, the following section describes these industries qualitatively in terms of geographic, economic and social elements and identifies the types of wine and tourism clusters.

6.4.2 Cluster Classification

The nature and strength of geographic, economic and social elements vary between cluster types. The data collected for this case study indicates wine and tourism clusters share some similarity in key dimensions but remain very different types of clusters. Key dimensions of these clusters are described, firstly for the for the tourism cluster followed by the wine cluster.

[13] Northern Metropolitan Institute of TAFE has established a training facility at Ararat

6.4.2.1 Northern Grampians tourism cluster

Strong geographic and certain economic dimensions are features of this cluster and, together with some aspects evident in the social dimensions, determine how this cluster is classified in this study.

Geographic dimensions

The landscape, particularly the Grampians mountain range, was identified as the most important geographic resource to the region's tourism industry by all of those interviewed. Existing infrastructure was seen as important to the industry by several of those interviewed; however, others identified it as a constraint, particularly in terms of access and the range of accommodation types. Most of those interviewed felt the region was isolated from the major tourism market in Melbourne. "If Halls Gap was two hours, and not more than three hours drive [from Melbourne], more would visit for a weekend", was a comment by one interviewee.

Halls Gap was described by most respondents as the centre of the tourism industry, with the Grampians National Park the main attraction, which suggests the cluster is geographically localised. However, the cluster is not dominated by a central player but rather made up of a number of participants, though some more dominant than others. Several of those interviewed suggested that some of the other tourism destinations in the region appear unable to compete with the attraction of the Grampians and Halls Gap, and this has resulted in a highly competitive approach to tourism development within the region. According to an industry representative form a regional centre near the Grampians, "If we could spread the visitors around or get them away from the Halls Gap, other places would benefit – other attractions in the region seem to struggle".

Economic dimensions

All of those interviewed agree, tourism is highly significant to the Northern Grampians regional economy. The industry is dominated by accommodation businesses and nature based tourism businesses. There are also a number of tourism industry associations in the region which focus on particular locations or activity types, and the local government (Northern Grampians Shire) plays a key role in facilitating and linking these associations and initiatives in the region. For example, an Economic Development and Tourism Strategy 2003-4 has been implemented by local government in consultation with industry, business associations, community and governments (Northern Grampians Shire Council, 2003). This has facilitated considerable horizontal integration across different sectors of the industry and across different locations. "We [tourism development agency] work very hard to bring the tourism associations together to

undertake joint initiative, particularly for marketing the region", commented a tourism officer when interviewed.

Regional production chains and supply networks were not clearly identified in the interviews suggesting there is limited vertical integration, with most respondents unable to provide a clear indication that inputs were readily available within the region. This suggests a shallow cluster. In addition, availability of tourism specific education and training services were regarded as limited by a number of those interviewed.

Information gleaned from the interviews also indicated that networking between businesses was *poor* to *adequate*; even through established industry associations, the level of networking was considered *low* by most interviewed. Networking that did occur was considered mostly formalised and focused on specific events, promotions and marketing initiatives. Some animosity between groups was mentioned by more than one of those interviewed, suggesting some reluctance to work together. Research into the Grampians regional tourism network produced similar findings (Braun, 2003).

Innovation was not seen as a strong part of the region's tourism industry; the limited innovation that did occur came from individuals within the region rather than from outside the region. None of the participants thought innovative capacity influenced competitiveness and indicated the competitive position of the region was not changing; again reflected in findings made by Braun (2003).

Social dimensions

As indicated, organised activities and major events – the Easter Stawell Gift and Grampians gourmet food event – were identified as particularly important and increased the region's competitiveness. These activities require collaboration between businesses and agencies but comments made by several of those interviewed suggested that these events were also the cause of some disquiet among businesses. An example given by an interviewee was the administration of the food and wine festival which, due to lack of collaborative input from businesses, has meant the event has been taken over by the Northern Grampians Shire.

Most of those interviewed agreed existing social infrastructure in the region was of some importance to tourism business development, but the level of knowledge and skill sharing between tourism businesses was undeveloped. Lifestyle was clearly identified as the primary attraction to the region, and one of those interviewed stated that, "many operators have opened tourism businesses to justify their move to the region".

A *potential* cluster

The interviews and other data clearly identify the importance of the region's physical geography to tourism; however, infrastructure constraints and isolation from markets impact on this cluster. Economic significance provides critical mass and regional recognition and these are strong cluster dimensions, but other economic dimensions are weak. In particular, vertical integration and networking, though evident, have largely developed as the result of top-down approaches. Of particular note is the number of poorly developed social dimensions which has strongly impacted on the classification of this cluster in this study.

The following characteristics, derived from the interviews and other data, reflect the Northern Grampians tourism cluster:

- strong geographic dependence and localised
- isolated with some limits in infrastructure
- critical mass and some horizontal integration
- limited vertical integration and networking
- underdeveloped social capital, collaboration and innovation.

This describes a cluster that contains some elements needed for cluster development but one that needs to be deepened and broadened to benefit from agglomeration. It has apparent gaps in inputs and services and information flow that support cluster development, and lacks social interaction and collaboration. A strong focus on lifestyle as a reason for business establishment appears not to have lead to strong social cohesion and collaboration. These cluster characteristics describe a *potential* cluster, where some cluster dimensions exist but there are many apparent gaps, particularly in economic and social elements, for a more developed cluster to exist.

6.4.2.2 Wine cluster classification

Geographic dimensions

Natural resources, particularly climate and the existence of a major transport route, were regarded as main geographic advantages for wine industry development in the region by those interviewed. Three quarters of those interviewed indicated the industry was dependent on these resources. A lack of service infrastructure was identified as the main constraint to industry development. The industry is dominated by a central player – Seppelts – and several large, but less dominant, participants who are dispersed throughout the region. Most of those interviewed

indicated that the wine industry did share some of its resources with other industries, particularly the agriculture and tourism industries.

Economic dimensions

The wine industry is regarded as significant to the regional economy by most of those interviewed, and this is supported by other data (Kronos Corporate, 2002). Consequently, the industry in this region is considered to have critical mass. A major player dominates and provides an economic focus which has encouraged other wine businesses to establish; for example, a large grape growing enterprise established to supply the major wine manufacturer.

The interviews revealed that selling of grapes to wine makers within the region does occur resulting in a level of horizontal integration. Vertical integration, production chains and supply networks are moderately well developed, with half of those interviewed indicating most inputs were supplied from within the region, including services such as education and training. This latter dimension is not evident in the tourism cluster.

Most of those interviewed indicated that networking was *good* to *very good* and industry association membership was regarded as *high* and mostly active. Information gleaned from the interviews also suggested that networking extended to joint activity in purchasing, promotions, marketing and training, with some limited joint financing of projects. Innovation was seen to be *well developed*; many of those interviewed felt this innovative capacity was derived primarily from individuals both within and outside the region, and that this had a positive impact on the competitiveness of the region.

Social dimensions

The established wine history of the region is recognised as significant to the industry and this, together with events and icon individuals, was identified by most of those interviewed as having a positive impact on the competitiveness of the Northern Grampians wine industry. The interviewees generally agreed that the level of knowledge and skill sharing is *adequate* to *well developed* and mostly occurs through informal means, both within the region and with neighbouring regions. A high level of social infrastructure and facilities were also identified. These dimensions, in the opinion of those interviewed, appeared to play some role in attracting new participants to the industry. However, as with other clusters, lifestyle was identified as the most important reason for new businesses to establish in the region.

A *latent* cluster

The interviews and other data indicated that geographic, economic and social elements are all important in the Northern Grampians wine cluster. The cluster shows many dimensions that would suggest strong cluster processes, and complex levels of co-operation are evident through joint activities which are not seen in the tourism cluster.

The Northern Grampians wine cluster:

- is geographically dependent
- has critical mass and economic significance
- demonstrates some horizontal and vertical integration
- has established networks
- has icon individuals and a key industry player
- is innovative and shares knowledge
- has social dimensions are well developed.

This cluster exhibits many of the features and positive benefits of a cluster as interpreted in this study. The description of this cluster as a *latent* cluster identifies that the opportunity for effective clustering exists. The critical mass is sufficient to derive the benefits of clustering, and there is evidence of relationships and interaction between cluster participants. However, the key attractions for new businesses are more associated with social (lifestyle) rather than economic considerations. For this cluster to move to a *working* cluster requires the ability to attract new entrants and infrastructure development, and demonstrate a cohesiveness that facilitates innovations within the cluster and fully engages the benefits of the cluster. This cluster may be approaching a *working* cluster; however, until businesses think of themselves as part of a cluster they cannot exploit the potential benefits of closer relationships with other local organisations.

The Northern Grampians wine and tourism clusters are clearly different, and in the following section (6.4.3), these classifications are related to cluster pre-condition. As in the previous case study, the remainder of this analysis of the Northern Grampians regional study is based on the results of the questionnaire distributed to industry participants and uses the same analytical approach.

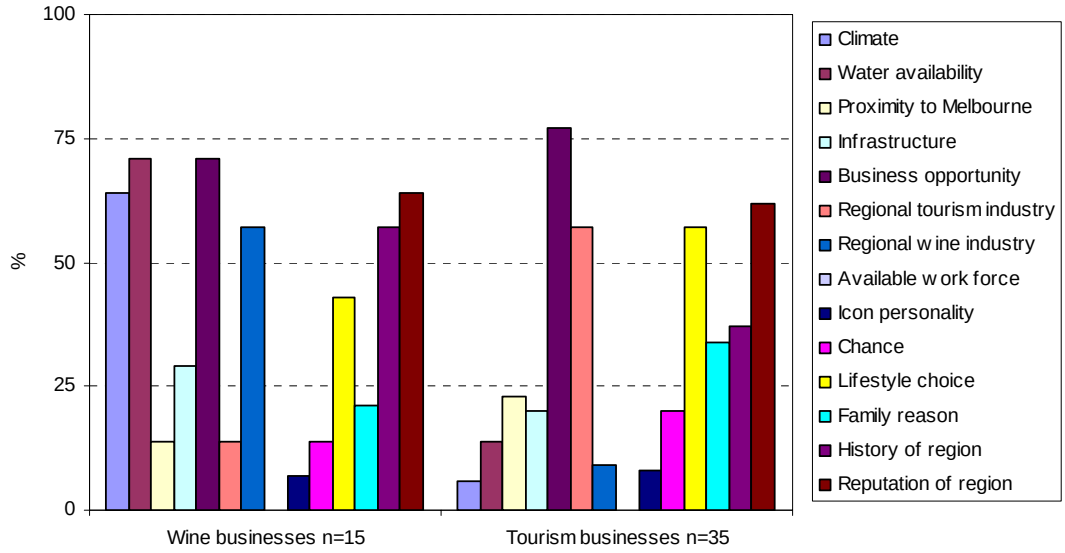
6.4.3 Cluster Pre-conditions

The wine and tourism businesses surveyed in the Northern Grampians have based their location decisions on a number of factors. In this case study most businesses surveyed are owner operated (59%) small businesses with annual turn-overs less that $100K (56%). However, there are a greater percentage of larger businesses in the wine cluster, with 21% turning over more than $1M compared with businesses in the tourism cluster achieving this level of turn-over. Most businesses indicated a growth strategy and few indicated an innovation strategy.

6.4.3.1 Location decision

Factors that influenced the location of the businesses in the Northern Grampians were identified in the survey. The pre-conditions are summarised in Figure 6.4.[14]

Figure 6. 4 Influences on location decision for Northern Grampians wine and tourism businesses



The data show that pre-conditions identified for the wine cluster are diverse and include: geographically related attributes such as climate and water availability; economic factors

[14] Pre-conditions are determined if more than 50% of respondents indicate this factor influenced their location decision.

including business opportunity and the presence of a regional wine industry; as well as socially related factors such as reputation and the wine history of the region.

By comparison, tourism businesses appear to have fewer pre-conditions. The pre-conditions that were identified were related to economic dimensions, particularly business opportunity and the presence of a regional tourism industry, as well as social dimensions of lifestyle and the region's reputation. The significance of natural resources and the Grampians as key factors in the establishment of the tourism industry was not clearly identified however, there is little doubt that these play a major role in the establishment of a tourism industry in this region. This has been identified in earlier data and should therefore be considered a pre-condition for the tourism cluster. With this in mind, these clusters are similar in terms of pre-conditions. Business opportunities, the most important pre-condition in both clusters, suggest the clusters may have some drawing power.

6.4.4 Passive Cluster Processes

As before, local supply and demand and skill and knowledge transfer are used to measure of passive cluster processes in this study. The survey results provide an indication of the level of cluster activity and this differs between these clusters.

6.4.4.1 Local supply and demand

In this case study, the absence of a major regional centre in the Northern Grampians region may have implications for the availability of goods and services. However, the survey data indicate that while most businesses purchase goods and services locally, only 43% of wine businesses and 23% of tourism businesses thought this was important. Specialist goods and services are less commonly purchased, but there is some indication that wine businesses are more likely to purchase specialist equipment locally than tourism businesses. This may stem from the existence of a significant wine enterprise and several larger wine businesses within the region which may be serviced locally by suppliers that have specialist capabilities; for example, agricultural suppliers that stock specific fertilisers for grape production.

A notable difference is observed in the data regarding the sale of goods or services locally, with 93% of wine businesses indicating they sell outputs locally compared to only 37% of tourism businesses. The data summarised in Table 6.8 suggests a strong local demand in the wine cluster, and is particularly the case for grapes sold for further processing and for wine making

consultation. Local sources of wine making consultation would indicate there is recognised regional expertise being developed and shared. The tourism businesses surveyed were predominantly hospitality businesses[15] which most often sold accommodation locally.

Table 6.8 Percentage of Northern Grampians wine and tourism businesses surveyed that sell goods and services locally

Outputs sold locally	*Wine businesses %*	*Tourism businesses %*
Grapes	57	*
Wine making consultation	43	*
Viticulture consultation	21	*
Wine	21	0
Food	0	14
Accommodation	14	40
Tourism activities	*	14
Contract labour	14	3
Equipment	29	0
Business consultation	7	0
Tourism consultation	0	3

Note. Item not listed in question for these businesses
Wine businesses n=15; Tourism businesses n=35

6.4.4.2 Skill and knowledge transfer

The responses made by the respondents regarding statements made in the questionnaire about the types of knowledge and skills businesses might obtain from other regional businesses revealed little difference between wine and tourism businesses. They did indicate that new skills and knowledge about new technologies or operational improvements and marketing and business strategies were not readily adopted. Other data indicate that different sources of skill and knowledge are important to businesses, and particularly to wine businesses. The responses to a series of questions to determine the importance of a number of sources of skill and knowledge are summarised in Table 6.9.

The data suggest that wine businesses generally regarded these sources of skill and knowledge as more important than tourism businesses (the lower the mean score the more important). This is particularly evident for wine businesses that source skill and knowledge from related wine businesses within and outside the region, tourism businesses and local education and training institutions. These data demonstrate a comparative lack of skill and knowledge transfer in the tourism cluster when compared to the wine cluster.

[15] 66% of tourism business are involved in hospitality on either a part time or full time basis

Table 6.9 Sources of skill and knowledge for Northern Grampians wine and tourism businesses

Sources of skill and knowledge development	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Other related businesses within the region	1.50	2.45	0.036**
Other related businesses outside the region	2.00	2.61	0.089*
Tourism businesses within the region	2.50		0.066*
Wine businesses within the region		3.30	
Individuals within the region	1.93	2.45	0.196
Industry associations	2.36	2.18	0.679
Local education and training institutions	2.38	3.42	0.043**

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level

The passive cluster processes identified and measured in this case study correlate with the cluster classifications. A number of the processes associated with local supply and demand and skill and knowledge transfer appear more developed in the wine cluster. The tourism cluster does not demonstrate similar passive cluster processes.

6.4.5 Active Cluster Processes

The wine and tourism clusters in the Northern Grampians case study demonstrate certain cluster attributes that depend on active cluster processes. It would be expected that a *latent* cluster such as the Northern Grampians wine cluster would demonstrate a capacity for active externality development; whereas a *potential* cluster such as the tourism cluster might have weaker active processes.

6.4.5.1 Joint activity and working together

Almost all businesses surveyed indicated they engaged in joint activities with other regional businesses. Table 6.10 summarises these data. In response to questions about working relationships with other businesses and agencies in the region, these data indicate that most of the relationships are with other regional businesses and suppliers. Wine businesses indicate they do not necessarily work more closely with education and research bodies and other tourism businesses, but are significantly more likely to do so than businesses in the tourism cluster.

Table 6.10 Relationships that Northern Grampians wine and tourism businesses have with other regional businesses and agencies.

Generally we work closely with …	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Other regional businesses	2.33	2.40	0.829
Regional suppliers	2.07	2.51	0.207
Education and research bodies	2.80	3.63	0.041**
Economic development agencies	2.93	3.23	0.476
Tourism businesses	2.67	3.57	0.037**

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level

6.4.5.2 Competition and collaboration

The competitive characteristics of businesses in the Northern Grampians wine and tourism clusters is demonstrated in the data summarised in Table 6.11. These data indicate that most businesses do not see others as direct competitors but do behave in competitive ways; for example, setting standards higher than other businesses (the lower the mean score the greater the agreement). Wine businesses demonstrate their behaviour is significantly more co-operative than tourism businesses, particularly in relation to working closely with other businesses.

Table 6.11 How Northern Grampians wine and tourism businesses regard other similar businesses

	Wine businesses#	*Tourism businesses#*	*ANOVA p-value*
We see these businesses as our direct competitors	3.67	3.37	0.455
We see these businesses as important to the success of our business	2.07	2.29	0.529
We are aware of what these other businesses are doing	2.20	2.31	0.694
We make every effort to set our standards higher than these other businesses	2.07	1.89	0.526
We work closely with these other businesses	2.27	3.20	0.012**
We are not influenced by what these other businesses are doing	2.93	3.14	0.544

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level

Collaboration between businesses was examined by asking respondents how important they felt collaboration was for a number of aspects of their business. Table 6.12 summarises their responses; the findings indicate wine businesses generally regard collaboration as more important that tourism businesses.

Table 6.12 The importance of collaboration with other businesses to Northern Grampians wine and tourism businesses

Collaboration factors	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Access to labour	2.62	3.38	0.096*
Selling intermediate goods to other businesses	2.71	4.00	0.002***
Buying goods from other businesses	2.43	3.24	0.049**
Providing access to new technology	2.54	3.58	0.035**
Increasing market demand	2.00	2.09	0.312
Finding new customers	2.43	1.97	0.792
Enhancing reputation	1.92	1.74	0.616
Improving innovation and new product development	2.14	2.81	0.111
Joint trade fare participation	2.00	2.58	0.209
Joint marketing	2.43	2.47	0.923
Accessing new markets	1.92	1.97	0.900
Accessing export markets	2.69	3.32	0.257
Joint market research	2.36	2.58	0.695
Inter-business referrals to other businesses	2.36	2.06	0.436
Inter-business referrals to your business	2.50	2.12	0.317

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

These data suggest different levels of collaboration between these clusters. The greater importance placed on collaboration by wine businesses is significant for selling intermediate goods. Wine businesses also regarded collaboration as more important than tourism businesses for buying goods and accessing new technology, and to a lesser extent accessing labour. The data reflects strengths previously identified in this wine cluster.

6.4.5.3 Sharing and trust

Responses to the questionnaire indicate that sharing between businesses in these clusters is more developed in the wine cluster than in the tourism cluster. Table 6.13 illustrates that knowledge is shared by the majority of wine businesses and less than half of the tourism businesses. Wine businesses appear more inclined to share equipment and labour but are less inclined to share innovation; a trend also identified in the Ballarat case study. The comparatively higher levels of labour and equipment sharing between wine businesses reflects the complex levels of co-operations identified through the interviews.

These measures active cluster processes adopted in this study support the contention that there are more active clustering processes present in a *latent* cluster (wine) when compared to a

passive cluster (tourism). These classifications may also help illustrate the likelihood of whether certain types of clusters overlap and/or complement each other.

Table 6.13 Percentage of Northern Grampians wine and tourism businesses that share businesses activities

Activities that businesses share with other similar businesses	*Wine businesses %*	*Tourism businesses %*	*ANOVA p-value*
Accommodation		35	
Production capacity	36		
Venues	7	0	0.120
Equipment	43	9	0.001***
Labour	36	6	0.023**
Marketing	29	38	0.535
Promotions	14	32	0.209
Expertise	29	32	0.802
Knowledge	71	44	0.089*
Innovation	7	18	0.359

Note. Wine businesses n=15; Tourism businesses n=35
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

6.4.6 Cluster Overlap

The measure of cluster overlap adopted in this case study is the same as that used in the Ballarat case study and, similarly, the analysis shows that the wine and tourism clusters in the Northern Grampians region do not overlap. Of the businesses surveyed (n=50), only 10% were engaged in wine-tourism. When asked about industry membership, four % indicated they were in both wine and tourism associations, and 6% indicated they were involved in wine and tourism related activities. These data clearly indicate that fewer than 20% of businesses are engaged in any form of cluster overlap.

6.4.7 Complementarity between wine and tourism clusters

The final component of this case study is to identify if there is cluster complementarity between the wine and tourism clusters in the Northern Grampians region. By identifying factors indicating how important each cluster is to the success of the other, that is their reputation, regional recognition and the relationships between clusters, the complementarity characteristics of the Northern Grampians case study are demonstrated.

6.4.7.1 *Cluster growth factors*

As described earlier, the importance of a reputation, regional recognition and the importance of an active industry (or cluster) on the growth of a businesses suggests a level of joint activity indicating cluster complementarity. The percentage of businesses surveyed in the Northern Grampians case study that identify these complementary cluster factors as important for growth is summarised in Table 6.14.

Table 6. 14 Complementarity factors important to Northern Grampians wine and tourism businesses for business growth

Factors important for business growth	*Wine businesses %*	*Tourism businesses %*	*ANOVA p-value*
Reputation	71	85	0.273
Regional recognition	50	65	0.354
Active wine industry	57	29	0.074*
Active tourism industry	36	77	0.007***

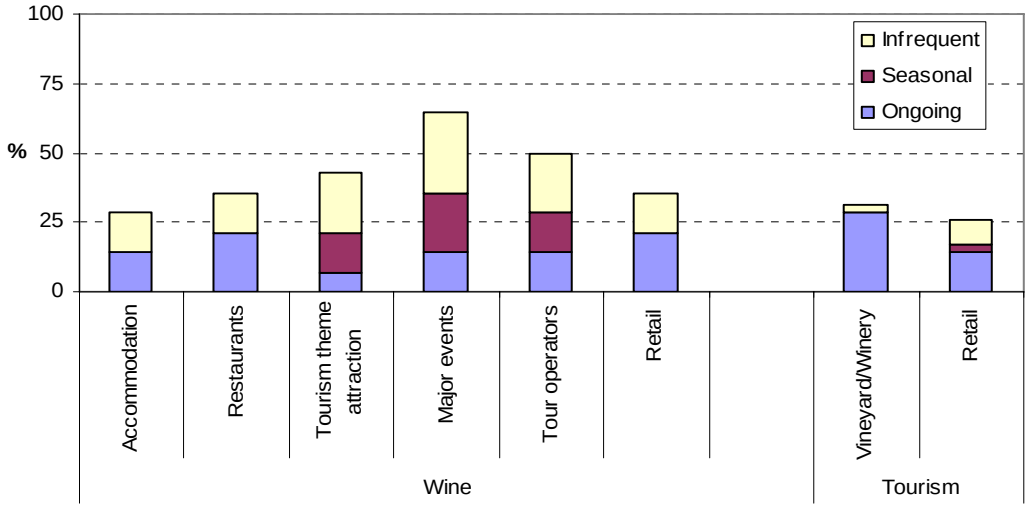
Note. Wine businesses n=15; Tourism businesses n=35
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

Most wine and tourism businesses surveyed indicate reputation, and to a lesser extent regional recognition, as important for growth. However a significant difference exists between wine and tourism businesses regarding how each view the importance of each other to business growth. Fewer wine businesses (29%) regard an active tourism industry as important for growth, while 36% of tourism businesses indicated an active wine industry was important for their growth. This finding is contrary to findings in the Ballarat study, where the majority of both wine and tourism businesses did regard tourism as important for growth. In the Northern Grampians study, there is little evidence of cluster overlap and this data would suggest that cluster complementarity may be less developed in the Northern Grampians region than the Ballarat study region.

6.4.7.2 *Intra-cluster activity*

Similarly with the previous case study, if joint activity between business types is an indicator of complementarity, and active complementarity is demonstrated if more than 50% of businesses engage in joint activities or complementary relationships with other businesses, the data represented in Figure 6.5 suggests wine businesses are actively complementary with major events and tour operators. It is becoming apparent that the strength of inter-cluster activity may have some impact on how co-located clusters interact with each other.

Figure 6. 5 Complementarity between Northern Grampians wine and tourism businesses based on joint activity



Note. Wine businesses n=15; Tourism businesses n=35

Wine businesses also demonstrate passive complementarity (more than 25% of businesses surveyed) with other tourism related businesses, including retail. Tourism businesses also indicate passive complementarity with businesses in the wine cluster. When asked if these relationships were formal or informal, most tourism businesses indicated informal; however, wine businesses were more likely to have formal relationships with restaurants, retail and major events.

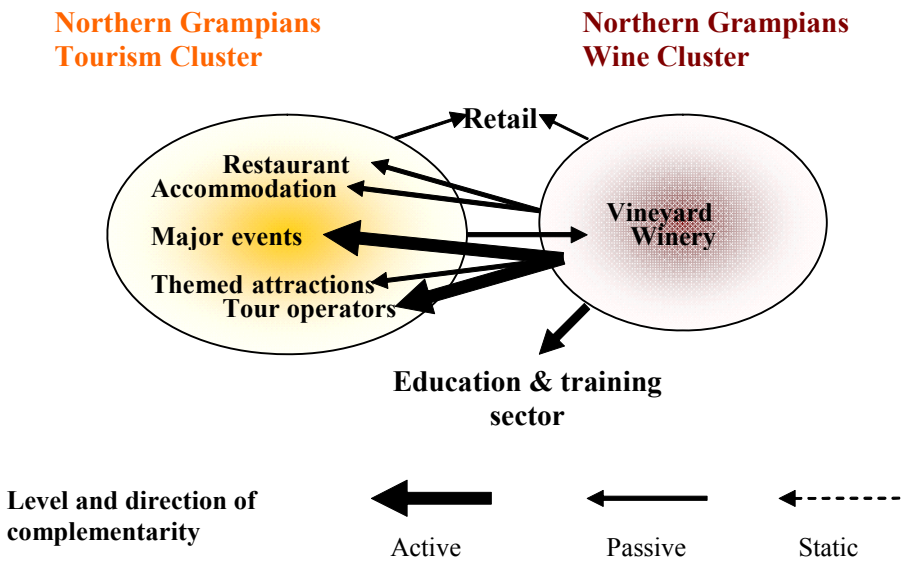
These data support the notion that the wine cluster has stronger relationships with the tourism cluster than vice versa. Furthermore, it demonstrates that, in the absence of cluster overlap, the tourism cluster demonstrates passive complementarity toward the wine cluster, while the wine cluster demonstrates active complementarity with some components of the tourism cluster.

6.4.8 Cluster Complementarity Map

The cluster complementarity map representing the Northern Grampians wine and tourism clusters is presented in Figure 6.6. In this case study, the map shows the active complementarity of the wine cluster to some sectors in the tourism cluster. The map also shows passive complementarity between both wine and tourism clusters and the retail sector. From data

presented in earlier tables, the wine cluster has an active relationship with the education and training sector, whereas the tourism cluster appears to have no relationship with this sector.

Figure 6. 6 Northern Grampians wine and tourism cluster complementarity map



This case study has identified that both the wine cluster and the tourism cluster gain some benefits from their co-location. As in the Ballarat study, the wine cluster displays active complementarity towards the tourism cluster which provides some scope for the strengthening and growing of the wine cluster. It is notable in this study that businesses place greater importance on the existence of their own cluster than on the presence of the other cluster (Table 6.14). This is a different outcome to that demonstrated in the Ballarat case study, where most businesses in the wine cluster placed importance on both the wine cluster and the tourism cluster for future growth. This finding might suggest that, in the Northern Grampians where both of the clusters classified have critical mass, the benefits of co-location with another complementary cluster, is not as important to the success of their businesses. In other words, these clusters could be regarded as more self-sustaining than, for example, those in the Ballarat study where the immature wine cluster regards the tourism cluster as important for its continued growth.

6.5 Case Study Three: Bendigo Wine and Tourism Clusters

6.5.1 Context

The Bendigo tourism region also forms part of the Goldfields product region and has a strong gold history and heritage foundation. The Bendigo region is rated highly by visitors for arts and culture, history and heritage, festival and events, and as a preferred family destination (Erickson & Brickley, 2001). In the absence of tourism specific data, but using the presence of accommodation, restaurants and cafes as an indicator, tourism is the seventh largest employer in the region.[16] As with the other case study regions, local government plays a crucial role in tourism promotion and initiative development through Bendigo Tourism.

Bendigo's tourism industry is based predominantly on domestic visitors, many of whom are visiting friends and relatives (Bendigo Tourism, 2002). Unlike Ballarat or the Northern Grampians region which have one key attraction, Bendigo has a range of attractions. These include a working gold mine, Chinese heritage, events and, more recently, food and wine related activities such as the Bendigo Wine Festival, Bendigo's Heritage Uncorked and a winery hosted music event. These types of activities are not as prevalent in the other two regions studied.

The Bendigo wine industry first established during the 1850s-60s. In the 1970s, there was a resurgence of interest in Bendigo wines largely initiated by Balgownie Wine's production of high quality wines (Dunstan, 1994; Halliday, 1982). Currently, there are 150 hectares of vines planted in the Greater Bendigo region with more planting planned. The region is becoming recognised for its *big reds* (Research Planning Design Group, 2001; Stonier, 2001). The survey undertaken by Stonier indicated that employment in the industry is growing and most of those employed are from within the region, with contract labour sought during peak periods. The Bendigo wine region is a registered Geographic Indications as is the neighbouring Heathcote wine region.

[16] Bendigo economic profile. Retrieved March 30, 2004 from http://www.bendigo.vic.gov.au/Page/Page.asp?Page_Id=103&h=1

The City of Greater Bendigo and the neighbouring shires of Loddon and Gannawarra collaborated to promote agribusiness in the region, and studies have been undertaken to explore opportunities in the areas of wine grape growing, wine bulk handling and crushing fruit facilities (Gould, 2000). This initiative is bannered *The New Mediterranean* and was launched in February 2000 (Gould, 2000); its focus on agriculture has some spin-off into the tourism sector through locally produced wine and food related tourism. In addition to these links, the viticulture and winemaking education and training opportunities provided by the Bendigo Regional Institute of TAFE (BRIT) has meant the Bendigo wine industry has developed some momentum (Research Planning Design Group, 2001).

Using a SWOT[17] analysis, the wine association identified strengths in the Bendigo wine region which included a commitment to and history of quality, rising popularity in red wines, tourism, lower entry costs and proactive training and education. Weaknesses included limited infrastructure, too few production sites for visiting, limited reputation and a lack of collaboration and vision for the wider regional wine industry (Research Planning Design Group, 2001).

From this brief overview of the wine and tourism industries in the Bendigo regions, it is clear that both are important regional industries. The following section examines these industries in terms of geographic, economic and social elements, and classifies them as particular clusters types. As with the other regional case studies, the data in the following section (6.5.2) are qualitative and have been gathered from secondary sources and in-depth interviews with industry representatives.

6.5.2 Cluster Classification

The wine and tourism clusters show certain similarities that are not so apparent in the previous case studies, and this is reflected in their cluster classification and subsequent clustering activities.

6.5.2.1 Bendigo tourism cluster

The Bendigo tourism cluster displays considerable strength over a range of cluster dimensions.

[17] SWOT is an analysis that measures strengths, weaknesses, opportunities and threats of a particular activity/organisation/situation

Geographic dimensions

The interviews clearly identified location as important, and the major geographic advantage to the Bendigo tourism industry. Melbourne, the major tourism market, is 150km away and the city of Bendigo is a major regional centre for north central Victoria. Other geographic dimensions identified as important by most of those interviewed were landscape, existing infrastructure, the region's natural resource base and the concentration of the industry around the city of Bendigo. The industry was not seen as focused on a particular central player, but rather on that involves a large and somewhat diverse range of businesses and attractions. There were no geographic constraints clearly identified. However, the lack of a freeway between Melbourne and Bendigo was mentioned by one participant as a limiting factor to tourism development.

Economic dimensions

The tourism industry in this region is recognised as economically significant by local government, regional development agencies and by all of those interviewed. This supports the critical mass dimension within this cluster. The strength of economic dimensions is enhanced by the diversity or breadth of the industry. Those interviewed indicated a wide range of businesses were involved in tourism, including retail businesses, conference venues, hospitality businesses and manufacturing based businesses, that have developed tourism components; for example, Bendigo Pottery, wineries, other agricultural businesses and a working gold mine. This provides a broad tourism base and considerable opportunity for horizontal cluster activity. Most of those interviewed indicated that other sectors shared in tourism resources. There were some concerns expressed by two of those interviewed regarding the limited level of interactivity between industry participants; they suggested that this might restrict the benefits of business being co-located in the region.

Vertical integration also appears relatively well developed, thus suggesting a *deep* cluster. Most of those interviewed indicated many inputs are supplied from within the region, with these being primarily made up of goods, services and promotional materials, and education. It was generally agreed that the tourism industry *adequately* integrated into the regional economy. A lack of availability of particular inputs was not identified in the interview, which is a somewhat different response to the other case studies where availability of specialist goods, in particular, was considered limited.

A weaker economic dimension was identified in the interviews, and this related to active networking. Most of those interviewed indicated this does occur within the tourism industry and between sectors, but there was a general feeling that networking needed to be developed further

if the industry was to become more dynamic. One of those interviewed suggested that "unless we learn to work together with a range of other types of businesses we will not catch all the benefits of our visitors". Networking in the industry was seen by the majority of those interviewed as mostly formal, through associations and joint promotional activity.

The innovative capacity of the industry was regarded by most interviewees as *good* to *adequate* and essentially coming from individuals within the region. Most of those interviewed indicated this influenced the competitiveness of the region.

Social dimensions

All of those interviewed agreed that history is significant to the tourism industry in Bendigo, and that this factor has increased competitiveness. Established major events were also identified as important for the industry, as were particular entrepreneurial characters in the region.

The level of social infrastructure was considered *moderate* by most of those interviewed, and was seen to have some impact on attracting new participants to the region. As with the other regional studies, lifestyle was the most significant reason given for new entrants. Existing facilities were also seen as important by most of those interviewed.

The level of knowledge and skill sharing within the industry was identified as *inadequate* by most of those interviewed. It was agreed that most knowledge was transferred through informal means, and that iconic personalities played some role in facilitating this. There was general agreement that, for the tourism industry to progress, a greater level of collaborative activity was required. The interviews also revealed some reluctance to share information or knowledge with neighbouring regions, and highlighted the importance of maintaining regional competitiveness for the continued growth of tourism in Bendigo.

The Bendigo tourism cluster would seem to have a number of strengths, particularly in relation to economic dimensions. However, the concerns expressed about the level of networking, and some weaknesses in social dimensions associated with knowledge sharing and collaborative activity, might suggest some restriction in cluster benefits which has impacted on how this cluster is classified for this study.

A *latent* cluster

The interviews and other secondary data indicated that geographic, economic and social elements are all important to the Bendigo tourism cluster. A number of geographic dimensions

and many of the economic dimensions are strong; however, there was some indication that some social dimensions could be better developed.

Based on the data gathered, the Bendigo tourism cluster:

- is geographically dependent on location
- has critical mass and economic significance
- is broad and focused on Bendigo
- has depth and demonstrates horizontal and vertical integration
- has networks within the cluster and with other sectors
- has icon individuals and a key industry player
- is socially strong in terms of lifestyle, history and social infrastructure
- is not fully engaging in collaborative activity.

These characteristics suggest that the Bendigo tourism cluster exhibits many of the features and positive benefits of a cluster. Therefore, the description of this as a *latent* cluster suggests the opportunities for effective clustering do exist.

Critical mass is sufficient to derive the benefits of clustering in this case. Furthermore, there is evidence of networking and the development of a broad and deep cluster. The ability to collaborate, innovate and share knowledge, are factors required for this cluster to move to a *working* cluster. Until these processes can be recognised, the cluster, which may be approaching a *working* cluster, is unable to fully exploit the potential benefits of clustering.

6.5.2.2 Bendigo wine cluster

The information gathered from the interviews identified a range of characteristics that differentiate the Bendigo wine cluster from the Bendigo tourism cluster and the other clusters described in this study.

Geographical dimensions

A number of key geographic resources were identified as important to the Bendigo wine industry; these were climate, location and industry concentration. The main constraints identified were infrastructure and water availability. Most of those interviewed agree the industry is dependent on its geographic resources.

No dominant enterprise or business was identified; rather, most of those interviewed regarded the industry as being dispersed across the region and made up of many businesses. This situation is evidenced by the fact that almost half of the 50 plus vineyards are less than two hectares in size with a further 35% being less than ten hectares in size (Research Planning Design Group, 2001).

Economic dimensions

The wine industry is regarded as a significant and growing part of the regional economy (Research Planning Design Group, 2001). Most of those interviewed identified the demand for wine products were changing in the region; this was related to increased sales both within the region and as exports. According to one interviewee who specialised in selling locally produced wine in the region, "some wines are difficult to purchase locally because they are being exported".

Other industries or industry sectors were identified as sharing resources with this industry, particularly agriculture, tourism and retail sectors. Those interviewed felt that networking between wine businesses and these other groups generally occurred through organised events, particularly food and wine events, and involvement with other sector associations. This suggests horizontal integration and a broad cluster base.

The level of vertical integration was seen as *adequate* to *well developed* with a wide range of goods and services provided from within the region. The level of networking within the industry was identified as *good* to *very good* by most of those interviewed. Information gleaned from the interviews identified networking within the industry was mostly through promotional and marketing activities and there was some joint purchasing, joint training and joint manufacturing. This factor was demonstrated by the establishment of a mobile wine making business that services the region's small grape growers who wish to produce their own wine.

The innovative capacity of the region was regarded as *good* by those interviewed. It is seen to be primarily derived from individuals within the region, and to provide competitive advantage. Industry association membership is high, with the level of activity was seen as *adequate* by most.

Social dimensions

The level of social infrastructure in the region was considered *medium* to *high* by most of those interviewed. Lifestyle was again identified as playing an important part in the establishment of businesses. Furthermore, the activity of the wine association and the facilities in the region were

also seen to encourage and support business development. The interviewees identified the history of the region as significant to the wine industry, believing this factor increased its competitiveness, together with events, icon characters, and the range and quality of products produced.

Knowledge and skill transfer were regarded as *adequate* by most of those interviewed, with transfer occurring by both formal and informal means. Reluctance to transfer knowledge and skills to those in neighbouring regions was expressed by some of those interviewed; this might reflect the level of cluster cohesions. When asked if the wine industry shares knowledge and skill with other industries in the region, there was general agreement that it did, particularly with the tourism and hospitality sectors.

Evidence from these interviews suggests that the wine industry in this region displays well developed cluster attributes. A number of these cluster strengths are not apparent in the tourism cluster or the other clusters described, suggesting this cluster is more developed.

A *working* cluster

The interviews and other data suggest the Bendigo wine cluster has strength in all three of the cluster elements. It can be described as:

- geographically dependent and dispersed throughout the region
- having critical mass
- a deep broad cluster with both horizontal and vertical integration
- innovative with developed networks
- strong in its social dimensions such as lifestyle, entrepreneurs, skill and knowledge transfer
- having developed, at some level, a sense of identity.

These data indicate that the Bendigo wine cluster is approaching a *working* cluster because it exhibits many of the favourable characteristics of clustering and has a level of inter-connectedness not seen in the other clusters in this study. It also appears to be developing a critical mass of local knowledge and expertise, and the benefits of co-location and co-operation are being used to some advantage. The cluster may also be developing a reputation which is attracting new key personnel or businesses to the region.

As in the previous two case studies, the following sections relate these classifications to cluster pre-conditions (Section 6.5.3). The remainder of the analysis is presented in; Section 6.5.4 and

6.5.5 where passive and active cluster processes are identified; Section 6.4.6 cluster overlap is determined; Section 6.5.7 the complementarity of these co-located clusters is explored. Finally, a cluster complementarity map is presented in Section 6.5.8. These sections of the Bendigo regional study are based on the results of the questionnaire distributed to industry participants. As previously indicated, these data are analysed both qualitatively and quantitatively using descriptive and inferential statistics to identify differences between each cluster.

6.5.3 Cluster Pre-conditions

The pre-conditions for a cluster to emerge are related to a wide range of tangible and intangible factors. Businesses surveyed in the Bendigo wine and tourism clusters were predominantly owner-operated or partnerships; no large companies or subsidiaries were identified in the wine businesses surveyed, and only one such tourism business was identified. Of those surveyed, 42% of tourism businesses indicated turnover of $100K-$500K and are small or medium in size, whereas most wine businesses (54%) are small businesses with an annual turnover of less than $100,000. These data indicate the larger businesses are predominantly tourism businesses. Most of the wine businesses (67%) were developed by the owner(s) compared to 48% of tourism businesses, suggesting some difference in businesses development between these clusters.

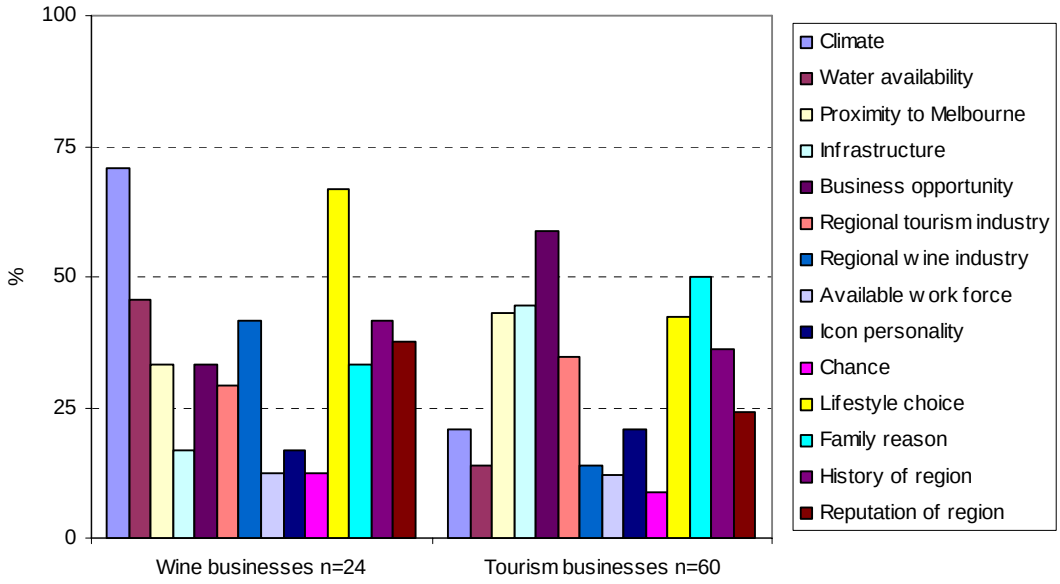
The majority of wine and tourism businesses indicated they adopted a growth strategy. However, 29% of wine businesses indicated status-quo, which is twice the percentage for tourism businesses, which might suggest different establishment motivation between these business types. Few of those surveyed indicated they had an innovation strategy.

6.5.3.1 Location decision

As previously stated, location decision is the key indicator used in this study to determine cluster pre-conditions. Figure 6.7 summarises the data collected by the survey in relation this factor. The results indicate that the primary pre-conditions for the wine businesses (more than 50% of those surveyed) to locate in the Bendigo region are based on geographic and social dimensions, and climate and lifestyle respectively. This is a notable difference from the tourism businesses surveyed; these indicated the economic and social pre-conditions of business opportunity and family reasons were the primary reasons for them to locate in the Bendigo region.

These findings are somewhat unexpected given that, these established clusters do not demonstrate strong cluster pre-conditions in this study, according to their cluster classifications and the commonly accepted notion that clusters have a range of pre-conditions..

Figure 6. 7 Influences on location decision for Bendigo wine and tourism businesses



6.5.4 Passive Cluster Processes

The interview data indicated that local supply of goods and services and skill and knowledge transfer in these clusters does occur.

6.5.4.1 Local supply and demand

When asked how important locally supplied goods and services were to the success of their business, the responses highlighted differences between the wine and tourism businesses. The majority of tourism businesses (7%) thought the local supply of local goods and services was *extremely* or *very important* to business success, while fewer than half the wine businesses surveyed had a similar response. When asked what types of goods and services businesses purchased locally, the majority of respondents indicated they purchase most types locally. However, as was the case with the other regional studies, specialist equipment and services were less likely to be purchased locally.

Goods and services sold locally reflect local demand; in this study, most wine businesses (83%) indicated they sell wine locally suggesting a strong local demand. In addition, wine making consultation services are sold by 46% of wine businesses which indicates local expertise and a demand for that expertise. These data show that very few tourism businesses sell services locally, thus suggesting weaker local demand. This trend is reflected in the three regional studies.

6.5.4.2 Skill and knowledge transfer

The data presented in Table 6.15 show the types of knowledge and skills that surveyed businesses recognised and adopted; these are mostly related to operational and technical improvement and are particularly important in the wine cluster (a mean score less than 2.5). The wine businesses adopt these from other regional businesses significantly more so than tourism businesses. As with similar data presented in the other case studies, this table represents the mean score for wine and tourism businesses and the lower the score the more agreement. The final column represents the probability that the difference between these means scores is a chance event.

Table 6.15 Types of business knowledge and skills that Bendigo wine and tourism businesses gained from other regional businesses.

We recognise and adopt….	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Operational improvements	2.17	2.80	0.070*
Technical improvements	1.91	2.92	0.003***
New marketing strategies	2.77	2.77	0.998
Improvements in distribution	3.32	3.06	0.416
Improvements in business strategies	3.18	2.77	0.221

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

When questioned about the sources of skill and knowledge, several significant differences occur as presented in Table 6.16.

These data indicate wine and tourism businesses surveyed regard other related businesses in the region as important sources of skills and knowledge development. In addition, wine businesses indicate that individuals, tourism businesses and local education and training institutions are important sources of skills and knowledge; significantly more so than tourism businesses. Also of note is the importance of related businesses outside the region to tourism businesses, which is

not similarly indicated by wine businesses. The reasons for this finding are difficult to interpret from these data; however, it is indicative of the establishment of local expertise in wine production and links to the supply and demand for local wine consulting expertise, which is not as apparent in the tourism cluster.

Table 6.16 Sources of skills and knowledge for Bendigo wine and tourism businesses.

Sources of skill and knowledge development	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Other related businesses within the region	2.05	2.21	0.630
Other related businesses outside the region	3.00	2.45	0.079*
Tourism businesses within the region	2.41		
Wine businesses within the region		3.28	0.009***
Individuals within the region	1.95	2.81	0.011**
Industry associations	2.23	2.43	0.597
Local education and training institutions	2.45	3.28	0.022**

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

The impact of passive cluster processes in these clusters varies. In terms of supply and demand, tourism businesses are more linked through supply chains, whereas it is through local demand for the wine businesses. Knowledge transfer within clusters is recognised as important, but in different ways; for wine businesses it is from other businesses within the region, whereas tourism businesses regard similar businesses outside the region as important. This factor may be indicative of a greater cohesion within the wine cluster when compared to the tourism cluster.

The wine and tourism clusters in the Bendigo case study appear to have clustering attributes that are well developed. Their level of dynamism will depend on how developed their active cluster processes are. Seemingly, a *working* cluster, such as the Bendigo wine cluster, would demonstrate active cluster processes. A *latent* cluster, such as the tourism cluster, would be less developed in this area.

6.5.5 Active Cluster Processes

Joint activity, competition, collaboration and sharing and trust have been used to indicate the development of active cluster processes. The questionnaire posed several questions about the relationships that businesses have with other local businesses or agencies in the region.

6.5.5.1 Joint activity and working together

Most businesses surveyed indicated they engaged in joint activities with other regional businesses. The degree to which these businesses work with a range of businesses and agencies is indicated in the data shown in Table 6.17.

Table 6. 17 Relationships that Bendigo wine and tourism businesses have with other regional businesses and agencies.

Generally we work closely with …	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Other regional businesses	2.29	1.93	0.119
Regional suppliers	2.13	1.75	0.120
Education and research bodies	2.67	3.32	0.039**
Economic development agencies	2.96	3.38	0.145
Tourism businesses	2.50	2.78	0.343

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level

These data indicate that wine and, to a greater extent, tourism businesses work closely with other regional businesses and suppliers, and least closely with economic development agencies. However, the surveyed wine businesses work significantly more closely than tourism businesses with education and research bodies; this supports earlier findings that wine businesses see education and training as important for business growth.

6.5.5.2 Competition and collaboration

The competitive behaviour of Bendigo wine and tourism businesses varies; that is, tourism businesses regard other tourism businesses as direct competitors which is clearly not the case with wine businesses surveyed, as presented in Table 6.18.

However, the reverse is the case for co-operative behaviour. Benchmarking against other businesses is important to both wine and tourism businesses. Competitive behaviour appears well developed in the tourism cluster in particular; although the wine businesses do behave in a competitive manner, they appear to be more co-operative and may be engaged in co-operation and competition (Enright, 1996).

Table 6. 18 How Bendigo wine and tourism businesses regard other similar businesses.

	Wine businesses#	*Tourism businesses#*	*ANOVA p-value*
We see these businesses as our direct competitors	3.83	2.52	0.000***
We see these businesses as important to the success of our business	1.62	2.42	0.004***
We are aware of what these other businesses are doing	1.95	2.15	0.388
We make every effort to set our standards higher than these other businesses	1.79	1.50	0.158
We work closely with these other businesses	2.58	3.00	0.122
We are not influenced by what these other businesses are doing	2.67	2.55	0.698

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
*** p-value of 0.01 or less is a significant difference at a 99% confidence level

The level of importance surveyed businesses placed on collaboration with other businesses adds to information on co-operative behaviour. Table 6.19 summarises the responses to a question on the importance of collaboration.

Table 6. 19 Importance of collaboration with other businesses to Bendigo wine and tourism businesses

Collaboration factors	*Wine businesses#*	*Tourism businesses#*	*ANOVA p-value*
Access to labour	3.18	3.73	0.144
Selling intermediate goods to other businesses	2.55	3.57	0.011**
Buying goods from other businesses	2.36	2.36	1.000
Providing access to new technology	2.27	2.87	0.392
Increasing market demand	2.14	2.33	0.544
Finding new customers	2.00	1.91	0.795
Enhancing reputation	1.33	1.56	0.280
Improving innovation and new product development	2.50	2.78	0.392
Joint trade fair participation	2.17	2.74	0.110
Joint marketing	2.29	2.43	0.687
Accessing new markets	2.08	2.66	0.066*
Accessing export markets	2.59	4.14	0.000***
Joint market research	3.32	3.46	0.703
Inter-business referrals to other businesses	2.17	2.42	0.449
Inter-business referrals to your business	1.89	2.04	0.517

Note. # Figures in these columns represent mean scores - a measure of 1 is strong agreement and a measure of 5 is strong disagreement – the smaller the score the stronger the factor.
* p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

In general, these data indicate collaboration is seen as important for a wide range of activities by both wine and tourism businesses surveyed. This is particularly so in the areas of enhancing reputation, finding new customers and for inter-business referrals. Wine businesses identify collaboration as significantly more important for the selling of intermediate goods, and accessing new and export markets, than the tourism surveyed businesses. These data indicate

the wine cluster may be better equipped to take advantage of collaboration for expanding market share and increasing demand, while businesses in the tourism cluster are focused on building reputation and a customer base.

6.5.5.3 Sharing and trust

Sharing activities, expertise and equipment are an indication of trust. By asking respondents to nominate from a list of business activities those they share with other similar businesses, significant difference between wine and tourism businesses is apparent. The data obtained are summarised in Table 6.20.

Table 6. 20 Percentage of Bendigo wine and tourism businesses that share businesses activities

Activities businesses share with other similar businesses	*Wine businesses %*	*Tourism businesses %*	*ANOVA p-value*
Accommodation		30	
Production capacity	17		
Venues	42	30	0.311
Equipment	46	12	0.000***
Labour	13	0	0.005***
Marketing	17	48	0.007***
Promotions	58	43	0.217
Expertise	58	33	0.035**
Knowledge	67	42	0.039**
Innovation	0	12	0.082

Note. Wine businesses n=24; Tourism businesses n=60
** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

These data provide an indication of the differences between the wine and tourism clusters in relation to active cluster processes and dynamism, and support the different cluster classifications in this case study. Most wine businesses surveyed share knowledge, expertise and promotions; and 46% share equipment, and a similar percentage share venues. This, in most instances, is significantly different from surveyed tourism businesses which appear less likely to share expertise and knowledge in particular. However, they are more likely to share in marketing activities and innovation.

From the data presented, it is clear active cluster processes do exist in the Bendigo wine and tourism clusters. However, the evidence suggests the wine cluster demonstrates these externalities to a greater extent, and therefore is considered more dynamic than the tourism cluster. As a result, this wine cluster can be classified as a *working* cluster in the context of this study.

6.5.6 Cluster Overlap

Similar to both the Ballarat case study and the Northern Grampians case study, the measure of cluster overlap adopted in this study indicates none exists between the wine and tourism clusters in the Bendigo region. Of the businesses surveyed (n=84), only 12% are engaged in wine-tourism. When asked about industry membership, only 4% responded they were in both wine and tourism associations, and 14% indicated they were involved in wine and tourism related activities. These data suggest that though these clusters are relatively well developed, this does not necessarily mean they overlap.

6.5.7 Complementarity between wine and tourism clusters

In order to determine the extent of complementarity between the Bendigo wine cluster and the Bendigo tourism cluster, cluster growth factors and intra-cluster activity were used.

6.5.7.1 Cluster growth factors

Reputation, regional recognition and an active tourism industry are important to both wine and tourism businesses, as represented in Table 6.21. Similarly with the Ballarat region study, most tourism businesses in the Bendigo case study do not regard an active wine industry as being important for their growth. On the other hand, a similar percentage of businesses in the wine cluster see both an active wine and an active tourism industry as important for growth. This finding supports the contention that complementarity between these two clusters is generated predominantly through the wine cluster, which this is a common theme emerging in this study.

Table 6. 21 Complementarity factors important to Bendigo wine and tourism businesses for business growth

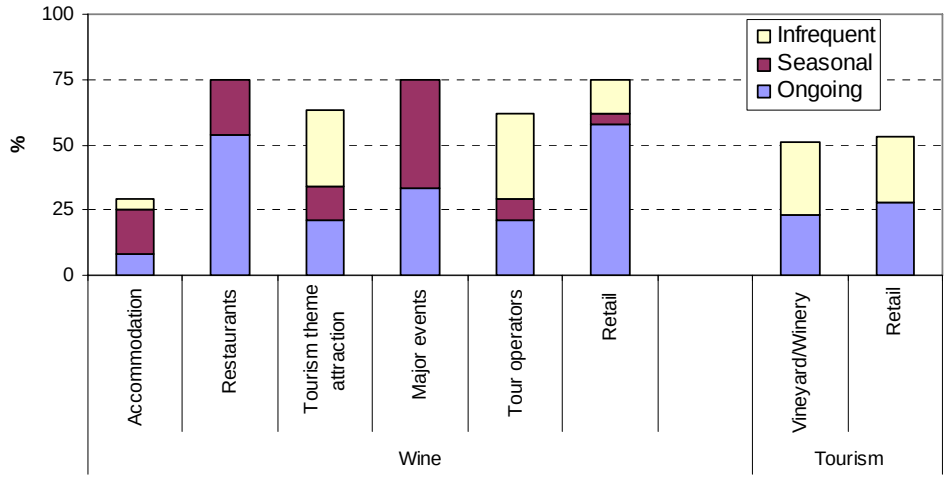
Factors important for business growth	*Wine businesses %*	*Tourism businesses %*	*ANOVA p-value*
Reputation	83	80	0.729
Regional recognition	63	60	0.835
Active wine industry	71	32	0.001***
Active tourism industry	71	71	0.940

Note Wine businesses n=24; Tourism businesses n=60
*** p-value of 0.01 or less is a significant difference at a 99% confidence level

6.5.7.2 Intra-cluster activity

The level of complementarity between these two clusters is derived from questions about joint activity with businesses in the complementary cluster. The type and extent of joint activity that occurs between wine businesses and tourism businesses is presented in Figure 6.8.

Figure 6. 8 Complementarity between Bendigo wine and tourism businesses based on joint activity



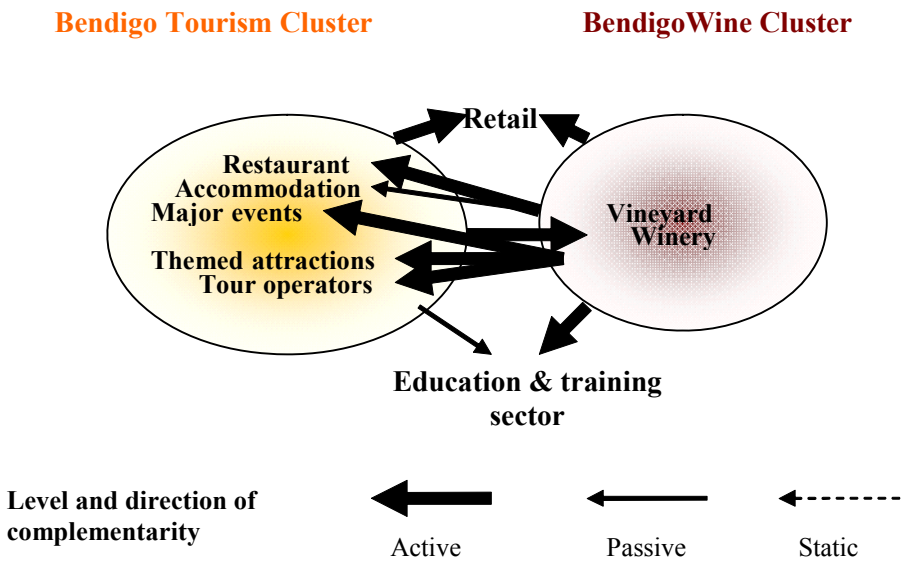
Note. Wine businesses n=24; Tourism businesses n=60

These data demonstrate the strength of wine cluster complementarity, with more than 50% of wine businesses surveyed indicating they undertake joint activity with most tourism related businesses (restaurants, tourism theme attractions, tours and major events), with the exception of accommodation businesses. This finding provides strong evidence of active complementarity with the tourism cluster on behalf of the wine cluster. This relationship is reciprocated by the tourism cluster where more than 50% of businesses are engaged in some form of business with the wine cluster. However, this situation is not compatible with earlier findings that fewer than 50% of tourism businesses regard wine businesses as being important to their growth. This may be in part because many of these joint activities appear to be infrequent. It is also contrary to related findings in the other case studies where tourism clusters do not demonstrate active complementarity with co-located wine clusters. Another notable finding in the Bendigo case study is that wine and tourism businesses demonstrated active complementarity with the retail sector at a level of complementarity not evident in the other case studies.

6.5.8 Cluster Complementarity Map

The cluster complementarity map representing the Bendigo case study is shown in Figure 6.9. This map illustrates that the comparative size of clusters is similar and the relationships between sectors within each of the clusters are relatively strong. The strength of relationships within the clusters may reflect the relationship between these clusters and other related sectors such as retail and the education.

Figure 6. 9 Bendigo wine and tourism cluster complementarity map



The Bendigo wine and tourism clusters demonstrate active complementarity through a high level of joint activity. Complementarity with the retail sector is active and relationships with education and training institutions are more developed in the wine cluster than the tourism cluster.

Implications for further development of cluster strength and structure would suggest that both the wine cluster and the tourism cluster gain benefits from their co-location and the relationship between businesses across these cluster

6.6 Chapter Summary

The purpose of summarising each of the case studies in this section provides an opportunity to bring together their similarities and differences in terms of cluster types, pre-conditions, and passive and active processes, and to present the main findings and themes that have emerged. In addition, it provides a useful reference point for the further analysis of these clusters, their industries and locations contained in Chapter Seven.

The question and answer format adopted for reporting these case studies has meant they can be discussed in such a way as to demonstrate how particular cluster processes and cluster theory can be used as a lens to identify and describe these regional wine and tourism micro-clusters. It also allows investigation, through a range of instruments, of the importance of cluster elements and dimensions on how clusters are formed and function. Finally, this approach facilitates the identification of cluster overlap and complementarity and the relationship between the two in the context of co-located wine and tourism clusters in three regions of Victoria.

It is important to note that the validity of these cluster classifications is not supported by inferential statistics and should not be seen as conclusive, but rather as a means of categorising the clusters in the context of cluster literature. Use of this process reduces the temptation to rank or score these clusters, as each cluster is unique and ranking is not appropriate in this study.

6.6.1 Cluster Elements Important in Classifying Regional Wine and Tourism Clusters

Does any one of the cluster elements – geographic, economic or social – become more important than the others in determining cluster type? The relative importance of elements in each cluster and their respective classification is summarised in Table 6.22 and reflect the qualitative data gathered in relation to the dimensions described in Chapter Four.

This information suggests that cluster elements vary in importance with different cluster classifications. For example, the *latent* clusters identified in this study are characterised by both important and very important geographic, economic and social elements. In the *working* cluster, all cluster elements are very important; whereas *wannabe* and *potential* clusters have certain

elements that are not important and hence lack an element(s) critical for cluster development. The social element is seemingly of less importance in many clusters, and it may be that this element creates the difference between cluster types in this study.

Table 6. 22 The comparative importance of elements in each cluster and the cluster classification

Elements	***Case study one: Ballarat***		***Case study two: Northern Grampians***		***Case study three: Bendigo***	
	Wine	***Tourism***	***Wine***	***Tourism***	***Wine***	***Tourism***
Geographic	X	XXX	XX	XXX	XXX	XXX
Economic	X	XXX	XXX	XXX	XXX	XXX
Social	XX	XX	XXX	X	XXX	XX
Classification	***Wannabe***	***Latent***	***Latent***	***Potential***	***Working***	***Latent***

Note. X not important; XX important; XXX very important

6.6.2 Cluster Pre-Conditions Important in Clusters

The summary of cluster pre-conditions related to cluster elements is provided in Table 6.23, and again this data indicate the types of pre-conditions important to clusters vary between clusters.

Table 6. 23 The comparative importance of elements in each cluster as cluster pre-conditions

Pre-conditions	***Case study one: Ballarat***		***Case study two: Northern Grampians***		***Case study three: Bendigo***	
	Wine	***Tourism***	***Wine***	***Tourism***	***Wine***	***Tourism***
Geographic	XX	XX	XXX	XXX	XX	X
Economic	X	XXX	XXX	XXX	X	XX
Social	XX	XXX	XXX	XXX	XX	XX
Classification	***Wannabe***	***Latent***	***Latent***	***Potential***	***Working***	***Latent***

Note. X not important; XX important; XXX very important

These findings suggest that the importance of pre-conditions does not necessarily relate to the level of cluster development. For example, pre-conditions in the Bendigo wine cluster a – *working* cluster – appear less important than those in the Northern Grampians tourism cluster – a *potential* cluster, and are similar to the immature Ballarat wine cluster. This finding suggests cluster pre-conditions, as identified in this study, might not be as important to cluster development as might have been expected.

The importance of social dimensions in the location decision of businesses is also reflected in Table 6.23. The data suggest that clusters are not necessarily formed by economic or geographic pre-conditions in isolation.

Economic pre-condition would not necessarily be strong in all of the clusters studied some of these clusters – for example, the Ballarat wine cluster – fall into the category of emerging cluster regional micro-clusters and, by its nature, may have limited economic significance. Of interest are the clusters that do have critical mass and in general have strong economic pre-conditions. However, this appears not always the case; for example, in the Bendigo wine cluster economic pre-conditions determined by location decision remain unimportant.

6.6.3 Passive Cluster Processes Important in Clusters

Passive cluster processes are diverse and identifying if passive cluster processes are important in each cluster provides an indication of their level development. Table 6.24 summarises the data obtained from the case studies and identifies that not all clusters demonstrate benefits associated with passive cluster processes.

Table 6. 24 Comparative importance of passive cluster processes in each cluster.

	Case study one: Ballarat		***Case study two: Northern Grampians***		***Case study three: Bendigo***	
	Wine	***Tourism***	***Wine***	***Tourism***	***Wine***	***Tourism***
Passive processes	X	X	XXX	X	XXX	X
Classification	***Wannabe***	***Latent***	***Latent***	***Potential***	***Working***	***Latent***

Note. X not important; XX important; XXX very important

Many of the clusters, independent of cluster type, indicate passive cluster processes are not important. For example, the Ballarat wine cluster shows little benefit from passive cluster processes, which might be expected given its classification and stage of development. However, this is not the case for all clusters; for example, the Ballarat and Bendigo tourism clusters are *latent* clusters that demonstrate a number of cluster strengths. These data suggest these clusters have limited recognised passive eternality development; this may be a function of tourism clusters in general and might reflect the broad scope and fragmented nature of this industry.

6.6.4 Active Cluster Processes Evident in Clusters

Active cluster processes are those that determine the level of cluster dynamism and should be well developed in *working* clusters, such as the Bendigo wine cluster. Table 6.25 summarises the data indicating the importance of active cluster processes to these clusters.

Table 6. 25 Comparative importance of active cluster processes in each cluster Active cluster processes

	Case study one: Ballarat		***Case study two: Northern Grampians***		***Case study three: Bendigo***	
	Wine	***Tourism***	***Wine***	***Tourism***	***Wine***	***Tourism***
Active processes	X	XX	XXX	X	XXXX	XX
Classification	***Wannabe***	***Latent***	***Latent***	***Potential***	***Working***	***Latent***

Note. X not important; XX important; XXX very important; XXXX extremely important

These data support the inference that *working* clusters are characterised by strong active cluster process. It also demonstrates that immature *wannabe* and *potential* clusters, such as the Ballarat wine cluster and the Northern Grampians tourism cluster, do not exhibit active cluster processes; in *latent* clusters, active processes are more important. These data support the findings of P. Brown (1999) findings that the presence of marketing externalities, which include active cluster processes, are important for the creation of dynamic clusters.

6.6.5 Overlap of Clusters

In this study however, cluster overlap implies both clusters need to share activities or businesses; none of the case studies demonstrated cluster overlap between their wine and tourism clusters. The use of this measure of cluster overlap may prove to be problematic in other applications but it remains important in this context because it is indicative of reciprocal interactivity between these clusters. In all cases in this study, the tourism clusters did not demonstrate sufficient levels of joint activity or engagement with wine businesses to constitute overlap. However, the exploration of overlap in this analysis warrants further investigation because there appears to be a different propensity for one cluster to show overlapping tendencies with another. Industry and regional implications will be explored in more depth in the following chapter.

6.6.6 Complementarity between Clusters

Assumptions on how to determine cluster complementarity were required in this study; use of the measures of active and passive complementarity has been adopted. Table 6.26 summarises the findings.

Table 6. 26 Cluster complementarity between clusters

	Ballarat case study		***Northern Grampians case study***		***Bendigo case study***	
Clusters	Wine	Tourism	Wine	Tourism	Wine	Tourism
Complementarity	**Active**	**Passive**	**Active**	**Passive**	**Active**	**Active**

This summary shows that it is generally the wine clusters that demonstrate more active complementarity than tourism clusters; the Bendigo tourism cluster being the exception. Understanding cluster complementarity between wine and tourism clusters is complex, and this study has relied on data gained from participants within the clusters. It is from this perspective that the cluster processes identified are being organically derived rather than derived from outside sources. With this in mind, the Bendigo wine and tourism clusters demonstrate reciprocal cluster complementarity which sets this region apart in term of the potential for wine-tourism development.

In the next chapter, these key findings will be explored in more detail, with an analysis of whether the clustering processes identified in this study are the results of location and/or industry characteristics. These results may influence the understanding of how wine and tourism clusters relate to each other. This next chapter adds a second level of analysis of the survey data; the use of factor analysis provides further groundwork for the development of a cluster complementarity model. Furthermore, from a grounded theory perspective, its use contributes to building some theory about micro-cluster behaviour in the wine and tourism industries and the role industry and location might play in this.

Chapter Seven Determinants of Clustering: Industry and Place

7.1 Introduction

In the previous chapter, the case studies suggested some differences between how the wine and tourism industries were structured, behaved and performed. In addition, there appeared to be differences between the locations in terms of the strength of clustering behaviour. Chapter Six also suggested that complementarity between industry groups were sometimes shown, and perhaps this could explain the development of a new industry – wine-tourism. In this chapter, the research examines the role of place and industry in explaining differences in clustering behaviour. From identifying these differences, the chapter then explores if they play a part in cluster interaction or overlap and wine-tourism complementarity. The basis of this chapter is wholly quantitative and is very much a complement to Chapter Six as it explores further the importance of differences in place and industry for clustering.

Theoretical deduction might expect that industry, place and other pre-conditions are critical to clustering. Place, as defined by geographic boundaries, partly determines the social structure of a cluster; according to Porter (1998), it governs the interaction between cluster members. Industry, as defined by common markets and processes, will have a critical impact on a cluster in terms of the common knowledge frameworks that determine and facilitate collaboration, knowledge diffusion and technology transfer. Other pre-conditions might be based on factors not necessarily determined by industry or place, such as chance or active complementarity between sectors or clusters.

Identifying and bringing these factors together, Chapter Six used quantitative and qualitative data to examine differences in clustering between cluster type, place and sector in the wine and tourism industries in Western and Central Victoria using a case study approach. This pointed to a number of interesting but very complex patterns of how wine and tourism enterprises cluster,

and indicated they share a number of common attributes such as geographic co-location and economic, social and natural resource assets. However, they also have significant demand and supply side complementarities that create better conditions for the development and performance of both industries. This complementarity, in terms of its nature and economic significance, varies considerably from one region to another. In addition, the types of clusters identified within the industries vary and include *wannabe, potential, latent* and *working* clusters (Enright, 2000a; Rosenfeld, 1996b). These differences were found to be largely dependent on the extent of development of the clustering processes within each cluster.

Earlier, it was outlined that the study is based on the notion of clustering rather than on a static analysis of mature clusters; hence, the questions are focused on the conditions that successfully drive clustering behaviour and processes, and how these are influenced by location and place. In model developed by Porter (1998), location and place are potentially both important. The geographic agglomeration that defines the cluster also influences markets, infrastructure and local competition, and is a focus for consumer choice. Likewise, the industry type also influences these elements through its impact on intelligent capital, specialised labour, industry knowledge and customised product (McKinsey, 2000). While both industry and geography are necessary, neither is sufficient; one factor might dominate, or each factor might operate effectively only in a particular configuration of the other.

This chapter explores the industry/place phenomenon in greater depth in order to identify whether these observations do indeed have an impact on clustering in general, and on wine and tourism cluster complementarity in particular. In doing so, the chapter examines questions that go beyond those specifically related to individual clusters at a case study level. It uses a statistical approach which attempts to simplify the complex and diverse set of relationships that have been identified to see whether there are some other underlying factors that play a part in determining how the processes of clustering vary, not only from case to case, but across industries and locations.

This involves identifying and measuring clustering processes using statistical data obtained from the questionnaire. The data is simplified and reduced in order to examine levels of association between clustering, cluster overlap, place and industry.

7.2 The Approach

It is commonly reported in the literature that each cluster is unique and therefore should not be compared with others (Lowe & Miller, 2001; Murphy et al., 1997; Verbeek, 1999). This chapter compares clusters on a locational and industry basis in order to proffer some theory associated with the particular regional wine and tourism cluster studies, their complementarity and development.

From the data analyses described in Chapter Six, a complex set of factors that impact on cluster behaviour were identified; however, these were complicated by the variations in cluster type and variations between industry and place. In order to provide some more meaningful data, there is a need to reduce this complexity which has been done by the use of statistical tests of inference to examine whether cluster location or cluster industry differ in terms of cluster behaviour. The questionnaire provided the primary data for this further level of analysis and is included in Appendix B.

The approach adopted for this part of the study involves two steps. In the first step of the process, ranges of variables collected from the questionnaire were used to measure the behaviour of businesses in a cluster. These measures concerned the importance of location and relationships, knowledge and skill to achieve business growth, and the importance of collaboration between regional businesses. In essence, these questions measured clustering activity; that is, how businesses co-operate and compete when they are co-located.

Within the process of analysis, these variables have been essentially overt, meaning they are directly observable through the data. The measures are in some senses quite crude, and it is necessary to re-evaluate these to ascertain what behaviours they actually reflect and whether there are basic and identifying factors that influence clustering behaviour. One way of identifying these underlying variables is through factor analysis which is a set of statistical methods that distil new variables or factors from larger data sets. This outcome is achieved by combining the known variables to identify those with the highest correlations, which are then combined or grouped together to produce a factor score of each observation, which in turn creates a new and underlying variable. Each of these new variables should be uncorrelated with each other and are orthogonal, which means that a respondent's scores for one factor are no indication of their scores on any other factor. Rather, factor scores should reflect some

underlying concept or construct; in this study, they reflect clustering behaviours and processes. The second step addresses a key question ignored by most research; that is, how are these factors – which equate to the processes within a cluster –influenced or associated with the cluster's location, industry, distribution of businesses and infrastructure.

To understand the relationship between clustering and the variables which can influence it requires the use of a range of inferential statistics to examine the association between the correlates of clustering and factors that determine clustering. The empirical analysis focuses on association rather that causation through a comparison of the probability distributions of the clustering data. As described in earlier (Chapter Five), ANOVA produce tests of differences between means and these, where significant, indicate a difference in the nature of the different populations.

These differences can be posed as a test of null hypotheses; that is, that there is no difference between clustering in different industries and locations. Hence:

- $H0_1$ – there is no difference in cluster processes in different cluster locations
- $H0_2$ – there is no difference in cluster processes in different cluster industries
- $H0_3$ –where clusters overlap cluster processes are the same as in single industries
- $H0_4$ – cluster contextual factors are not influenced by other (covariates) of clusters

These are the null hypotheses. There is however a *prima facie* case for there being differences in cluster processes between industries and locations because of the process of clustering that emerge from clusters identified in Chapter Six. These provide the basis for the alternative hypotheses HA_1 to HA_4.

7.3 Clustering Factors

The questionnaire, as previously described, was used to survey wine and tourism businesses and contained a range questions asking the respondents to express their opinion, measured on five point likert scales of agreement/disagreement, with statements designed to explore the facets of clustering. These statements related to views regarding attitudes to working with other similar businesses both within the region and in other regions, and relationships with other types of businesses and agencies. Together these statements were designed to draw out information about attitudes and behaviour of the respondents.

The data from the questionnaire facilitates specific analyses to determine whether activities underlying clustering, which might lead to better performance, are associated with specific industries and/or specific places. The analysis was not however designed to investigate whether businesses in clusters exhibit superior performance.

On order to do this, it was necessary for the survey to sample both businesses in places in which more than one cluster existed, and the industries that constituted those clusters existed across the sample of places. Clusters of both tourism enterprises and wine enterprises exist in the Ballarat, Bendigo and Northern Grampians regions. Six clusters were identified, each of which existed in one of three locations and one of two industries. This not only allowed analysis of whether place or industry was more important, but whether there was an interaction between place and industry, and whether enterprises that were part of both clusters in any one place behaved differently.

7.3.1 The Factor Analysis

Four factor analyses were conducted using an unweighted least regression method, with each analysis focusing on one or a combination of related questions in the questionnaire (questions 10, 11, 19/20 and 21 – see Appendix B). The new variables created through the factor analysis are not correlated with each other and reflect an underlying construct. Details of this analysis are contained in Appendix C.

Each question contained a number of statements relating to particular cluster processes or characteristics. The multiple statement questions each yielded two or three underlying factors which captured the essence of the sets of responses. The resultant factor scores that were generated for each identified factor (with the exception of two factors for question 10) were saved and became new variables for subsequent analysis. The output of the four factor runs derived the following factors.

Two factors were identified from the six statements contained in Question 10 which is concerned with how businesses perceive similar businesses in their region. The factors accounted for 23.4% and 12.7% respectively of the total variation in the data.

- The first factor included statements related to both businesses seeing other similar businesses as important to their success, and working closely with these other

businesses. This factor, which is indicative of co-operative behaviour between businesses, was labelled CO-OPERATION.

- The second factor that emerged related to statements about the respondent business setting standards higher than these other businesses; it concerns benchmarking, awareness of what other businesses are doing and seeing other businesses as direct competitors. This is characteristic of competitive behaviour and this factor was called COMPETITION.

Two factors were identified from the statements about working relationships with other local businesses and agencies in Question 11. Factor one accounted for 45% of the variance and factor two 15.8%.

- Factor one related to businesses working closely with economic development agencies, education and training bodies and with tourism businesses in particular. This would suggest working relationships across sectors and indicates horizontal cluster development; hence, this factor was labelled HORIZONTAL.
- The second factor related to businesses working closely with local suppliers and other businesses in general, and some interaction also with tourism businesses in particular. This describes vertical supply chain development and close working relationships with local businesses; hence this factor was labelled VERTICAL.

Questions 19 and 20 from the questionnaire were combined as they both refer to skill and knowledge transfer. These questions were about types of skill and knowledge, the sources of these and if they were recognised and adopted by respondent businesses. Two factors were identified and accounted for 46% and 8.8% of variance respectively.

- Factor one related to recognition and adoption of new marketing and business strategies, improvements in distribution and operations and the adoption of technical improvements from other regional businesses. This factor, which may be indicative of network activity to procure knowledge and skill, was labelled KNOWELDGE NETWORK.
- The second factor was about the different sources of skill and knowledge; it included sources from related businesses in other regions, businesses within the region, individuals and industry associations. Such sources of skill and knowledge are diverse but have a strong industry focus and are not confined to regions; hence, this factor was called INDUSTRY KNOWELDGE.

The final question analysed was Question 21 which comprised 15 statements about how important collaboration was with other regional businesses for a range of benefits that might be derived from cluster development. Three factors were identified from these statements and accounted for 43%, 11.3% and 6.9% of the variance.

- The first factor related to collaboration with other regional businesses and how important this was for joint marketing, trade fair participation, market research and accessing export markets. This behaviour would suggest that it is important to act jointly to increase or grow new markets; therefore, this factor was labelled MARKETS.
- The second factor was about finding new customers, enhancing reputation, increasing demand and accessing new markets. This indicated largely that collaboration was important for increasing demand though new customers and markets and reputation, and was called DEMAND.
- The third factor concerned collaboration with other businesses for the selling and buying of intermediate goods, accessing technology, labour and innovation. This factor, which indicated input/output development and new technologies that result from collaboration, and was labelled INPUT/OUTPUT.

In total, nine factor score variables were created. The analyses were coded on five point likert scale where 1 indicated strongly agree to 5 strongly disagree, meaning the lower the score on each factor the stronger agreement of that factor construct.

7.3.2 Analysis of Variance

Analysis of central tendency and variance (ANOVA) was then applied using the factor scores obtained through the factor analysis for each of the nine factors. This process was undertaken with the intention of determining whether the scores are different for different industries (wine and tourism), different locations (Ballarat, Northern Grampians or Bendigo), or for wine-tourism enterprises and other enterprises.

These analyses identify which of the clustering processes explain location or industry differences and if there is a difference between them. In addition, the analysis will explain if there is a variance in clustering behaviour between wine-tourism enterprises and location or industry. As in Chapter Six, a probability p-value is calculated for each mean comparison. As described previously, this indicates the probability of the differences between the factors scores being a function of chance; for example, a p=0.05 is equivalent to being 95% confident that the

differences are significant and are not the result of the sample being unrepresentative by chance; a p=0.01 is equivalent to being 99% confident.

In order to understand what these figures mean in relation to the Factor analysis component of this study, an understanding of what happens in a hypothesis test and how it applies in this context is needed. The null hypothesis is the start point, which is very conservative in that there is no real difference between the sample mean values. For example, for the factor labelled CO-OPERATION in Table 7.1 were the means scores are for each location are 0.0024, 0.0194 and –0.0131, the observed differences are due to *sampling error*, that is, by chance the samples are not completely representative as indicated by the p-value which is 0.984 (almost one). Hence, if the null hypotheses was rejected and the conclusion was that there were difference between the locations for the CO-OPERATION scores, there would be a 98.4% chance that the null hypotheses would be rejected when the null hypotheses was true; this would be misleading.

If, on the other hand, the factor labelled VERTICAL were considered, Table 7.1 indicates the p-value is 0.005 and, in this case, if the null hypothesis was rejected, the conclusion would be that there were differences between the regions as regard this factors mean scores and there would only be a 0.5% chance, that is, one chance in 200, that the null hypothesis would be rejected when it was true. In this instance, it would be wise to conclude that there were real differences between the three locations average mean scores for this factor, and that these differences were not due to sampling variations.

In order to interpret the analysis of variance results, each of the clustering factors identified were firstly compared to determine whether there were differences between locations (Ballarat, Northern Grampians and Bendigo), and whether these differences were significant. The same process was undertaken to compare the wine and tourism industries, and then to compare wine-tourism enterprises with all other enterprises. By comparing these results, it is possible to determining the relative influences that industry, place and wine-tourism activity have in respect of clustering behaviour.

7.4 Clusters, Industry and Place

What are the implications for cluster development in different industries and different places? The Harvard Business School (Institute for Strategy and Competitiveness, 2004) data suggest

that there are dominant locations and industries represented by clusters. Cluster development in Italy has been dominated by the specific history and culture of northern Italy, and is very location focused (Harrison, 1991). However, few studies have attempted to assess the relative impact of place over industry. This is of course a complex question since their relative effects may be difficult to disentangle.

From the cluster studies referred to above, main drivers of industry collaboration and the adoption of competitive practice can defined. Furthermore, the relative importance of industry or place in the creation and capture of these effects can be identified to the extent that they create clustering behaviour and develop successful clusters.

7.4.1 Co-location of Wine and Tourism Clusters

The research in this study is concerned with the wine and the tourism industries, which are two very different industries when considered in relation to a number of dimensions. Specifically, the wine industry in Australia is technology based, collaborates widely and trades extensively in international markets (Anderson, 2000). The tourism industry in Australia is less well defined; it involves a number of different industry sectors and is more likely to be more reliant on small business start-ups that are unsupported by competitive advantage in resources or strategic positions. Hence, the industries are different in a number of critical ways that affect the potential impact of clustering on them, and which influence the scope of clustering in their development.

The study was undertaken using three case study areas – Ballarat, Bendigo and Northern Grampians – with a number of established and new tourism and wine enterprises. The data gathered in this study through the questionnaire was used to identify the drivers and contingent factors that drove clustering behaviour. From the outcomes of these regional case studies presented in Chapter Six, there was evidence that place played some role in clustering behaviour.

Furthermore, from the chapter it was evident that the level of interaction or complementarity between co-located clusters was more developed through the wine clusters; these were more inclined to show active complementarity with the tourism cluster, but the reverse was not the case. However, in one of the locations, there appeared a greater level of complementarity between the two clusters which suggested that this location or place has attributes that lead to greater clustering activity within and between the different sectors. In summary, three tentative conclusions emerge from the analysis thus far:

- The wine industry operates more like a cluster that the tourism industry.
- Wine-tourism collaboration or development stems mainly from wine based enterprises.
- The impact of these effects is partly influenced by location.

This mainly qualitative analysis of the three locations, which indicates how the wine and tourism clusters function and interact, raises important questions about the impact of industry and place on clustering activity. The remainder of this chapter develops theoretical perspectives and uses quantitative analyses to test the main proposition that industry type explains clustering better than place but that place can have a moderating effect.

7.5 Comparing locations

The three regional study areas – Ballarat, Northern Grampians and Bendigo – all display differing wine and tourism cluster types, as described in Chapter Six. Their pre-conditions, passive and active cluster processes, cluster overlap and cluster complementarity all display characteristics that might occur as the consequence of individual clusters, or perhaps as a consequence of their location.

The analyses in Chapter Six clearly show that there are differences between locations in terms of both the size and structure of businesses and business strategies. Influences on business location has been used as the means for determining cluster pre-conditions in this study; and in a comparison of locations, several significant differences become evident. These included differences in location decisions based on business opportunity, the existence of a regional wine industry, regional reputation, family reasons and chance. These data show some difference between locations and the location decisions of businesses.

Differences in passive cluster processes between clusters and locations have also been identified. These passive processes, when combined with cluster pre-conditions, provide the base for a location to support clustering activity. However, it is the presence of active cluster processes however, that play a major part in the establishment of dynamic clusters within a given location. The identification of the clustering factors that relate to these active processes, and measuring their variation between regions, provides an understanding of whether these processes vary between locations.

7.5.1 Comparing Locations: The Results of Analysis of whether Cluster Factor Scores Differ Between Locations

The outcomes of this analysis are simply meant to detect regional differences with regard to the wine and tourism cluster and not to be interpreted as representing the wider business culture of these regions. Table 7.1 provides a summary of the data and shows the probabilities (p-value significance levels) for the locational differences in clustering activity. The table also records sample size (n) and the mean scores for the factors, where the lowest score indicates highest agreement.

The significance of the differences between the mean values of the factor score was different for each location – Ballarat, Northern Grampians and Bendigo regions. These data show some interesting outcomes that are based around competition, co-operation and collaborative behaviour across locations in this study. For those factors where there is a significant difference between the regions, the difference between the highest and the other two is identified using a *post hoc* multiple comparison test[18].

[18] It is acknowledged there are some risks with this approach but given there are only three factors to compare, this risk is minimised. It should also be noted that this analysis is not the only means of assessing regional differences but adds to the qualitative analysis in the earlier chapter.

Table 7. 1 Differences between locations for identified clustering factors

Measure of cluster activity - factor	n	Mean	ANOVA p-value
CO-OPERATION			.984
Ballarat	57	.0024	
Northern Grampians	50	.0194	
Bendigo	84	-.0131	
COMPETITION			**.000 *****
Ballarat	57	.2640	
Northern Grampians	50	.2263	
Bendigo	84	-.3139	
HORIZONTAL			.433
Ballarat	57	-.1086	
Northern Grampians	50	-.0471	
Bendigo	84	.1017	
VERTICAL			**.005 *****
Ballarat	57	.1722	
Northern Grampians	50	.2282	
Bendigo	84	-.2526	
KNOWLEDGE NETWORK			.867
Ballarat	57	.0518	
Northern Grampians	50	-.0014	
Bendigo	84	-.0343	
INDUSTRY KNOWLEDGE			.848
Ballarat	57	.0169	
Northern Grampians	50	-.0584	
Bendigo	84	.0233	
MARKETS			**.012****
Ballarat	57	.2068	
Northern Grampians	50	-.3066	
Bendigo	84	.0422	
DEMAND			.563
Ballarat	57	.0959	
Northern Grampians	50	-.0891	
Bendigo	84	-.0120	
INPUT/OUTPUT			.090 *
Ballarat	57	.1112	
Northern Grampians	50	.1469	
Bendigo	84	-.1629	

Note. * p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

7.5.1.1 Co-operation and competition

The results in Table 7.1 show that there are differences between the clustering factors CO-OPERATION and COMPETITION with regard to the variation between regions. With the CO-OPERATION factor there is no evidence of any difference between the average scores in the three regions. However, the second factor score COMPETITION does show a significant difference between regions (see Table 7.1). A comparison of the mean factor scores for the three different regions shows Bendigo (-.1319) has a much lower score than the other regions; the lower the score means the more agreement there is with the construct that competition is an important clustering factor. In this case, it can be concluded Bendigo respondents recorded lower values on the questions that made up most of this factor. This implies that in the Bendigo region, wine and tourism clusters regarded setting standards higher than other businesses (benchmarking), awareness of what other businesses are doing and seeing other businesses as direct competitors as more important than either Ballarat or Northern Grampians, suggesting this region behaves in a more competitive way.

7.5.1.2 Joint activity and working together - horizontal and vertical

The two factors that emerged regarding joint activities also show differences between regions. The first is local agencies and businesses as cluster members generally working closely together and with other agencies and institutions within the region – HORIZONTAL; the second is working with other businesses and suppliers – VERTICAL. The data show no significant difference between locations with regard to horizontal clustering, but a there was a significant difference in vertical clustering activities at the 0.5%level[19] (Table7.1). This implies that vertical clustering processes vary by region, or are regionally dependent in this study, but horizontal clustering processes do not.

A comparison of the mean factor score indicates Bendigo has a far lower mean score than the other regions for the clustering activity factor VERTICAL, meaning more agreement with the construct that businesses work closely with local suppliers and other businesses in general and with tourism businesses in particular. This suggests that vertical or joint activity with suppliers and other businesses is most important to the wine and tourism clusters in the Bendigo region than either the Ballarat or Northern Grampians regions.

[19] p-value 0.005 means there would be a 0.5% chance (one in 200) that the null hypotheses would be rejected when the null is true and therefore a real differences between the average scores is likely and these differences are not due to chance.

7.5.1.3 Skill and knowledge transfer – knowledge networks and industry knowledge

The clustering factors relating to skill and knowledge transfer – the KNOWLEDGE NETWORKS and INDUSTRY KNOWLEDGE factors – show no significant differences between locations with p-values of 0.867 and 0.848 respectively (Table 7.1).

7.5.1.4 Collaboration – markets, demand input/output

The importance of collaboration between cluster members for a range of cluster benefits identified three clustering factors – growing new MARKETS, growing DEMAND and accessing INPUTS/OUTPUTS and technology. Again, there are differences in factor scores between locations; the differences are significant for collaboration to grow new MARKETS at the level of 5% and for accessing INPUT/OUTPUTS and technology at 9%. However, there appears to be no significant difference between locations for collaborating to increase DEMAND (Table 7.1).

With regards to the MARKETS factor, the effect of location is most notable for Northern Grampians which has a lower mean factor score (-.3066) than the other regions, indicating Northern Grampians sees collaboration for growing markets as more important than the other locations do. A comparison of scores for the INPUT/OUTPUT factor reveals Bendigo has a notably lower mean factor score (-.1629) than either Ballarat or Northern Grampians. This suggests that Bendigo wine and tourism clusters regard collaboration for accessing input/output and new technology as more important than the other locations do.

This analysis shows that some clustering factors certainly vary between locations. Whether this variation is solely due to location or to some other causes is open to speculation, but the data does confirm that location can play a role in cluster development in the wine and tourism industries. This may not be surprising given the nature of these industries, which often have strong links with locations based on natural resources as in sectors of the wine industry and geographical attractions as with sectors of the tourism industry.

7.6 Comparing Industries

Tourism clusters in each of the case study regions exhibit similarity in terms of critical mass and regional significance. In this study, the Ballarat and Bendigo tourism clusters have been described as *latent* clusters and the Northern Grampians tourism cluster is described as a *potential* cluster. On the other hand, the regional wine clusters investigated show a greater variance both in size and hence cluster classification; they have been described as a *working* cluster in Bendigo, a *latent* cluster in the Northern Grampians and a *wannabe* cluster in Ballarat (Chapter Six). The cluster descriptions indicate variations in cluster types within sectors, and this may well impact on cluster processes that occur in regional wine and tourism industries. Using the clustering factors identified by the cluster analysis, together with a comparison of and industry differences, may uncover issues that differentiate these industries in term of their cluster behaviour.

Inherent differences between wine and tourism industries have been identified and the literature suggests that these differences may have an impact on the ways in which these industries develop and function as clusters. In this study, the three regional study areas – Ballarat, Northern Grampians and Bendigo – display differences in wine and tourism cluster types which were described in Chapter Six.

The analyses in Chapter Six suggested that the pre-conditions for business establishment different between wine and tourism industries. The questionnaire data show that there are few differences in business structure between businesses in the wine and tourism industries; most are owner-operated micro to small businesses with a growth strategy. However, a significantly greater percentage of tourism businesses provide more than 80% of operators' livelihood, suggesting that there are more substantial full-time businesses in the tourism industry in this study. The analysis also indicates these industries share some similarities; they comprise a significant lifestyle segment, depend on their geographic location and have some interaction when co-located.

It is acknowledged that, within the Australian context, these two industries provide only a limited test of place verses industry in clustering; however, they are also of interest because both have been targets of various initiatives designed to improve competitiveness and regional growth in many parts of Australia. Furthermore, comparing clustering factors of these industries in this study provides an indication of the propensity for wine and tourism industries to adopt clustering activities that might facilitate the formation of dynamic clusters.

The analyses presented in Chapter Six indicated that the pre-condition for wine and tourism cluster establishment based on business location decisions varied. The pre-conditions identified as important to the wine industry were based around natural resources – for example, climate and water – and the presence a regional wine industry; for the tourism industry, the pre-conditions related to economic consideration – that is, business opportunity, the existence of an active regional tourism industry and infrastructure.

The data also revealed that passive cluster processes – that is, the processes not actively sought – may be more important in the wine clusters when compared to the tourism clusters studied. Of particular interest is the observation that wine businesses regard tourism businesses more as sources of skill and knowledge than vice versa. This difference is alluded to in this study where the wine clusters seem more reliant on the tourism clusters for business growth.

7.6.1 Comparing Industries: The Results of Analysis of whether Cluster Factor Scores Differ Between Industries

The importance of active cluster processes in cluster dynamics is the focus of in this section, and in particular whether there are any differences between wine and tourism industries. As in the previous section (7.5.1), the use of factor analysis provides a more in-depth analysis that might distinguish the apparent differences in wine and tourism clusters identified through the case studies. The factors identified were used as variables for the analysis of variance between industries, and the results of these analyses are provided in Table 7.2. This table summarises the probabilities (significance levels) for the industry differences in clustering activity. The table also records sample size (n) and the mean scores for the factors, where the lowest score indicates highest agreement[20].

[20] *Note* the questions in the questionnaire were coded on a likert scale where 1 indicated strongly agree and 5 indicated strongly disagree; or 1 indicated extremely important and 5 not important.

Table 7. 2 Differences between wine and tourism industries for identified clustering factors

Measure of cluster activity - factor	n	Mean	ANOVA p -value
CO-OPERATION			**.001*** **
Wine	59	-.3595	
Tourism	132	.1607	
COMPETITION			**.001*** **
Wine	59	.3425	
Tourism	132	-.1531	
HORIZONTAL			.186
Wine	59	-.1419	
Tourism	132	.0634	
VERTICAL			.092*
Wine	59	.1746	
Tourism	132	-.0780	
KNOWLEDGE NETWORK			.279
Wine	59	.1099	
Tourism	132	-.0491	
INDUSTRY KNOWLEDGE			**.000*** **
Wine	59	-.3526	
Tourism	132	.1575	
MARKETS			**.017** **
Wine	59	-.2341	
Tourism	132	.1046	
DEMAND			.211
Wine	59	.1217	
Tourism	132	-.0544	
INPUT/OUTPUT			**.000*** **
Wine	59	-.3723	

Note. * p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

7.6.1.1 Co-operation and competition

Both the CO-OPERATION and COMPETITON factor variables are important. Both of these factors show highly significant industry differences (p-value is 0.001), meaning there is only 0.1% likelihood that the difference between the wine and tourism industries in relation to these clustering factors is by chance. The differences in mean factor scores suggest that the wine industry regards co-operation with other similar businesses as more important than is the case with tourism. According to the components of this factor score, respondents were more likely to work with other businesses and see them as important to their success. In addition, they did not see other similar businesses as direct competitors, all of which indicates higher levels of co-

operation than in the tourism industry. However, respondents within the tourism industry score significantly higher on the COMPETITION factor score variable. Therefore, the regard other similar business as direct competitors, make every effort to set standards higher and indicated did not work closely with these other businesses. The conclusion which can be drawn suggests there are major differences in how these two industries behave in their cluster processes. However, it must be noted, that these two factor scores were obtained from the same set of questionnaire variables, meaning that the CO-OPERATION and COMPETITION variables are orthogonal to each other – that is, uncorrelated[21].

7.6.1.2 Joint activity and working together - horizontal and vertical

These aspects of clusters are included in the factors HORIZONTAL and VERTICAL. From earlier findings, there is some indication that wine businesses might be more engaged in joint activities with particular agencies in education and training, than the tourism businesses. However, when tested for the HORIZONTAL factor, these differences are only significant at the 18.6% level which does not indicate a significant difference. The second factor, VERTICAL, does show a greater difference between the two industries at 9%; the lower mean factor score suggests the tourism industry generally works more closely with other businesses in the supply chain. However, the analysis of these factors reveals that these differences are not significant at the 5% level.

7.6.1.3 Skill and knowledge transfer – knowledge networks and industry knowledge

The clustering factor variables relating to skill and knowledge transfer – KNOWLEDGE NETWORKS and INDUSTRY KNOWLEDGE – vary between industries. For instance, the difference between industries for the KNOWLEDGE NETWORK factor when tested is to a significance level of 29.7%, thus indicating no significant difference. However, the importance of INDUSTRY KNOWLEDGE – knowledge transferred from related businesses in other regions and businesses within the region, individuals and industry associations – is significantly different at the high level of 0.0%. The lower mean factor score for the wine industry suggests that industry and other related businesses are more important sources of skill and knowledge than in the tourism industry. It can be concluded from this that industry knowledge sources are more important in the wine industry, most likely reflecting the higher level of skill and technology required by this industry.

[21] This means that they must not be interpreted as opposites at different ends of the continuum. This apparent contraction is important in the understanding of cluster behaviour.

7.6.1.4 Collaboration – markets, demand and input/output

The importance of collaboration in clusters is well documented and a noted strength of the Australian wine industry. The three collaboration clustering factors identified in this study are for growing new MARKETS, growing DEMAND and accessing INPUT/OUTPUT and technology. The data in Table 7.2 show there are significant differences between industries as regards MARKETS and accessing INPUT/OUPUT. In both instances, the wine industry has the lower mean factor score indicating that respondents in this sector agreed more strongly that these forms of collaboration were important for business growth than the tourism sector. There was no evidence of significant difference between industries in relation to the DEMAND variable.

From the analysis, it appears that active cluster processes demonstrated through these clustering factors do exist in both the wine and tourism industries. However, the wine industry appears to be more co-operative and collaborative and have a greater level of industry based skill and knowledge transfer than businesses in the tourism industry which are more competitive and seemingly less collaborative. These findings would suggest that active cluster processes might not be as well developed within the tourism industry as in the wine industry in this study.

These data confirm that there are significant industry differences between wine and tourism clusters based on these cases. These differences exist across the various clustering criteria identified in this study. The relationship between co-located wine and tourism businesses, in terms of the level of inter-industry interaction, provides an indication of cross sector complementarity. The next section looks at those businesses that indicated they were involved in both wine and tourism and compares them with all other businesses surveyed in terms of the clustering behaviour.

7.7 Industry Overlap – Wine-tourism

Based on the data collected, a group of enterprises were identified as being involved in both wine and tourism activities; hence, these were labelled wine-tourism businesses. This section examines whether these wine-tourism businesses exhibit the same or different clustering behaviour to those that were specifically based in wine or in tourism.

7.7.1 Industry Overlap: The Results of Analysis of whether Cluster Factor Scores Differ for Wine-tourism Enterprises

Table 7.3 provides a summary of the data and shows the probabilities (significance levels) for the differences in clustering activity between businesses involved in wine-tourism and those involved in either wine or tourism activities. The table also records sample size (n) and the mean scores for the factors, where the lowest score indicates highest agreement. There a several significant differences between the mean values of a number of factor scores when comparing wine-tourism and other enterprises across the businesses surveyed in the Ballarat, Northern Grampians and Bendigo regions.

Table 7.3 Differences between wine-tourism businesses and the wine and tourism industries for identified clustering factors

Measure of cluster activity - factor	n	Mean	ANOVA p-value
CO-OPERATION			**.000*** **
Wine-tourism	27	-.6462	
Other	164	.1064	
COMPETITION			.821
Wine-tourism	27	.0405	
Other	164	-.0067	
HORIZONTAL			**.003*** **
Wine-tourism	27	-.5279	
Other	164	.0869	
VERTICAL			.746
Wine-tourism	27	.0091	
Other	164	-.0554	
KNOWLEDGE NETWORK			.671
Wine-tourism	27	-.0710	
Other	164	.0117	
INDUSTRY KNOWLEDGE			**.009*** **
Wine-tourism	27	-.3849	
Other	164	.0634	
MARKETS			**.006*** **
Wine-tourism	27	-.4424	
Other	164	.0728	
DEMAND			.837
Wine-tourism	27	.0330	
Other	164	-.0054	
INPUT/OUTPUT			**.005*** **
Wine-tourism	27	-.4496	
Other	164	.0740	

Note. * p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

7.7.1.1 Co-operation and Competition

The results in Table 7.3 reveal there are differences in the clustering factors CO-OPERATION and COMPETITION between wine-tourism enterprises and the other wine and tourism businesses. This analysis indicates a significant difference in the CO-OPERATION factor scores between wine-tourism businesses and all the others. The mean factor score for wine-tourism is lower indicating wine-tourism respondents co-operate to a greater extent than the rest of the sample. In this case, it can be concluded that the wine-tourism sub-industry behaves more

co-operatively than the businesses operating only in the wine or tourism industries. The second factor score, COMPETITION, does not show a significant difference between wine-tourism and the other wine or tourism businesses.

7.7.1.2 Joint activity and working together - horizontal and vertical

There is a significant difference between wine-tourism businesses and all other wine and businesses for the clustering factor HORIZONTAL. The lower mean factor score for wine-tourism indicates that these respondents display more horizontal activity than all other respondents. There is no significant difference between groups for the VERTICAL clustering factor.

7.7.1.3 Skill and knowledge transfer – knowledge networks and industry networks

The clustering factors relating to skill and knowledge transfer – KNOWLEDGE NETWORKS and INDUSTRY KNOWLEDGE – vary between the overlapping wine-tourism businesses and other businesses. There is no significant difference for KNOWLEDGE NETWORKS but a very significant one at the 0.9% level between groups for INDUSTRY KNOWLEDGE. Again, a lower mean factor score for wine-tourism suggests that industry based knowledge from related businesses are more important sources of skill and knowledge for wine-tourism than they are for the businesses solely operating in the wine or tourism industries. This may indicate a certain reliance on specific skill and knowledge transfer for the development of wine-tourism enterprises.

7.7.1.4 Collaboration – markets, demand and input/output

The importance of collaboration in clusters is again indicated by these clustering factors. Of the three clustering factors identified, there are significant differences between the wine-tourism businesses and the individual wine and tourism industries for both MARKETS and accessing INPUT/OUPUT. In both instances, the wine-tourism businesses have a lower mean factor score indicating this sector was more likely to collaborate than the rest of the sample.

The findings in this analysis may have important implications for the development of wine-tourism. Porter (1998) suggests that at the intersection of clusters evidence of clusters become vibrant. In this study, evidence exists that, at the intersection of wine and tourism clusters, the overlap in the form of wine-tourism results in businesses that display clustering activity to a

greater extent when compared to businesses engaged in the individual wine and tourism industries. The significance of this level of clustering activity is evidenced by a range of identified clustering factors, including: HORIZONTAL, CO-OPERATION with other wine and tourism businesses, INDUSTRY KNOWLEDGE transfer, collaboration to grow MARKETS and access INPUT/OUTPUT and technology.

7.8 Chapter Summary

A summary of the results for all sectors and locations appears is Table 7.4. In this table, *Place* refers to the p-values from location differences presented in Table 7.1; *Industry* refers to the p-values from differences between the wine and tourism industries presented in Table 7.2; *Overlap* contains the p-values presented in Table 7.3 and refers to the differences between wine-tourism businesses and the rest of the sample.

Table 7. 4 Differences between place, industry and overlap for identified clustering factors

Measure of cluster activity - factor	Independent variable		
	Place	***Industry***	***Overlap***
	p-value	p-value	p-value
CO-OPERATION	.984	**.001*****	**.000*****
COMPETITION	**.000*****	**.001*****	.821
HORIZONTAL	.433	.186	**.003*****
VERTICAL	**.005*****	*.092**	.746
KNOWLEDGE NETWORK	.867	.279	.671
INDUSTRY KNOWLEDGE	.848	**.000*****	**.009*****
MARKETS	**.012****	**.017****	**.006*****
DEMAND	.563	.211	.837
INPUT/OUTPUT	*.090**	**.000*****	**.005*****

Note. * p-value of >0.05 to 0.1 is a significant difference between groups at a 90% confidence level; ** p-value of >0.01 to 0.05 is a significant difference between groups at a 95% confidence level; *** p-value of 0.01 or less is a significant difference at a 99% confidence level

In the analysis for the CO-OPERATION factor, almost no difference is apparent between locations (*Place*), but there are significant differences between the *Industries* and wine-tourism

Overlap at the 0.1% and 0.0% levels respectively. Thus, it can be concluded that it is both industry and wine-tourism overlap that are important determinants of clustering where businesses work closely together with other similar businesses, and are generally aware of them and see them as important to their success in the cluster. CO-OPERATION varies little between locations, but significantly between wine and tourism industry types and the where clusters overlap – that is, wine-tourism.

Conversely, the COMEPTITION factor suggests almost no difference between wine-tourism and the rest, but a significant difference between location and industry at the 0.0% and 0.1% levels respectively. Thus, it can be concluded that industry and place are important determinants of competitive clustering behaviours.

With regard to the HORIZONTIAL factor, there is little difference in the three case study locations recorded as *place*, with the difference being only at the 43.3% level (0.433). Likewise, little difference is seen between wine and tourism industries at the 18.6% level. However, a significant difference at the 0.3% level does occur between wine-tourism businesses and the other businesses (*overlap*). For that reason, if can be concluded that there is a highly significant difference between horizontal factors, such as the importance of resources and common customers, for wine-tourism businesses than for either industry or location.

A different conclusion can be made for the VERTICAL factor score; there is a lesser difference at a 9.2% level between the wine and tourism industries and virtually no difference at a 74.6% level for wine-tourism (*overlap*), but a significant difference between the three locations (*place*) at the 0.5% level. These results strongly suggest that vertical supply/supplier links vary significantly between the three locations; that is, less so between the wine and tourism industries and not at all for wine-tourism businesses.

For the KNOWLEDGE NETWORKS factor, the analysis does not provide evidence of any differences between place, industry or overlap. However, INDUSTRY KNOWLEDGE reveals there is a significant difference across the wine and tourism industries and between wine-tourism businesses, with the remainder of the sample at the 0.0% level and the 0.9% levels respectively, and almost not difference between locations (*place*). This would suggest industry knowledge transfer varies significantly between industry and business type, but very little based on location.

The remaining three factors describe various outcomes of collaboration with other businesses. These factor scores do not show consistent differences between location, industry and wine-tourism overlap.

The first factor in this group relates to collaboration to grow new MARKETS where all three variables exhibit significant differences, and the interaction between all cases also shows significant difference at the 0.7% level. The second factor is concerned with collaboration increasing DEMAND through finding new customers, inter- and intra-business referrals and enhancing reputation. There is little difference between locations, industries or wine-tourism overlap which all show no significant difference for this clustering factor. The final factor in this group is collaboration to access INPUT/OUTPUT (buying and selling goods) and new technologies. There is a degree of difference between locations at the 9% level but significant differences are notable between industries and wine-tourism overlap at the 0.0% and 0.5% level respectively. Thus, it is both industry and wine-tourism overlap that are important determinants in this factor, and industry type matters in this relationship.

Overall, these results would indicate that there are significant differences between industries in scores for CO-OPERATION, COMPETITON and INDUSTRY KNOWLEDGE, as well as for MARKETS and INPUT/OUPUT, whereas location shows significant differences for VERTICAL, COMPETITON and MARKETS, and less so for CO-OPERATION. Wine-tourism overlap again shows different characteristics with HORIZONTAL, CO-OPERATION, INDUSTRY KNOWLEDGE, MARKETS and INPUT/OUTPUT showing significant differences to the remainder of the businesses.

In conclusion, *place* and *industry* both influence clustering behaviour but in different ways. With the exception of KNOWLEDGE NETWORKS and INPUT/OUTPUT factors, all factors reflecting clustering behaviour are statistically significant. However, *industry* has greater explanatory power than *place*. *Industry* can best be described by CO-OPERATION, INDUSTRY KNOWLEDGE and DEMAND, whereas for *place* it is VERTICAL relationships. COMPETITION and MARKETS are equally well explained by both *place* and *industry*. Of particular interest in this study is the influence of the wine-tourism sector. Compared to the single industry/cluster, this sector demonstrates clustering behaviour in terms of CO-OPERATION, HORIZONTAL, INDUSTRY KNOWLEDGE, MARKETS and DEMAND.

Chapter Eight Conclusions and Regional Implications

8.1 Introduction

In this final chapter, the conclusions of the study are presented and the wider implications of these findings for regional wine and tourism clusters, and their overlap and complementarity within the emerging wine-tourism industry, are discussed. The contribution that this study makes to regional wine and tourism micro-clusters and their form, function and drivers, is also presented. The cluster complementarity model for wine and tourism micro-clusters is shown and its application to this study outlined. The chapter concludes with implications and strategies' arising from this study for a cluster based approach to regional development, and identifies further research opportunities stemming from this research.

8.2 Clusters in context

8.2.1 Micro-clusters

This study drew much from the work of Rosenfeld (1996b, 1997) on interpreting and validating what can be considered micro-clusters in rural and regional economic landscapes). The is recognition that regional economic significance and size may not identify the existence of clusters (Rosenfeld, 2002a); rather, clusters can simply represent a concentration of enterprises independent of their size but that produce synergy because they are co-located and interdependent (Rosenfeld, 1997). Rosenfeld suggests that the rate of activity, rather than the extent, concentration or quantity of output, identifies the effectiveness of a cluster. This notion

is demonstrated in this study, which identifies clusters based on co-location and the strength of interactions within the cluster, and recognising that clustering processes are important in cluster formation and development.

Furthermore, the connection between clusters, their overlap and complementarily, can also facilitate clustering processes. Porter (1998, 2003) highlights the significance of the relationships between clusters, and though his approach is less concerned with micro-clusters, it identifies that vibrancy is likely to occur when clusters intersect. In this study, when wine and tourism clusters intersect through co-location and interaction, the form of interaction influences the degree of complementarity between these clusters, which in turn impacts on each cluster and the potential for new cluster development.

8.2.2 Systems and frameworks

The process of identifying and describing rural and regional micro-clusters, where cluster elements can vary in importance and might not be as significant as in more mature or more easily recognised clusters, requires such a systematic approach. This is an aspect, particularly, of rural micro-clusters that has been recognised by Rosenfeld (2001b), and more recently highlighted by Porter et al. (2004, p.62-63), who suggest there "…is a lack of systematic evidence about the composition of rural economies at the cluster or sub-cluster level".

Given this study recognises that micro-clusters have to work to define their growth and can be overlooked in cluster studies, identification of unusual or small-scale forms of clustering was required. Using a range of cluster elements and dimensions described by Jacobs and De Man (1996) and Enright (1997), this study explored wine and tourism micro-clusters; however, it was necessary to develop a less conventional approach to classifying these clusters, a point recognised by Rosenfeld (2002a). Drawing from economic systems (Kauffman, 1995), the study adopted a form of systems approach to explore these co-located micro-clusters. This approach involved a framework which fostered both a multidisciplinary and multi-level forms of analysis.

The framework was an organisational tool in the study; it identified which elements – geographic, economic and socia l– and subsequent dimensions where embedded in each cluster. The framework therefore provides a valuable and flexible level of analysis that suits the study of co-located and interacting micro-clusters. It includes both indicative and prescriptive qualities, identifies a complex range of elements and dimensions that make up clusters, and explains and examines regional wine and tourism micro-clusters and their interrelationships.

8.3 Issues and Key Findings

The initial research question in this study was to determine if the co-location of wine and tourism enterprises leads to clustering and through the cluster processes improves the growth and performance of the wine and tourism industries. In addressing this question, the study examined the strength and structure of clusters and clustering processes that exist and the importance of these factors on the development and strategy of wine and tourism enterprises and their associated industries. Three key issues are assessed:

- The drivers for micro-cluster formation and development in the wine and tourism industries.
- Clustering processes and their differences in the wine and tourism industries, and in different locations.
- Cluster overlap and complementarity in co-located wine and tourism enterprises and the intra- and inter-industry clustering effects.

8.3.1 Findings

The drivers of micro-cluster formation and development vary between industry and location. In co-located wine and tourism enterprises, there are economic, geographic and social elements required for the formation and development of clusters. In this study, pre-conditions for cluster establishment are unique and depend on the type of cluster and the clustering processes that operate.

Examining clustering processes within and between regional wine and tourism enterprises has provided an important insight into how micro-clusters interact or complement one another. The study has identified that clustering processes are important at a number of levels: within clusters, between clusters, in different industries and in different locations.

Cluster overlap can exist, but this study suggests that in micro-clusters this may not be the case. Cluster overlap need not be directly related to the complementarity between co-located clusters and may not be significant for wine-tourism development. However, the degree of complementary between co-located clusters impacts on wine-tourism development.

8.3.2 Contributions to Knowledge

This thesis has applied a complex phenomenon of clusters to little studies regional industry inter-relationships. As a result, it has added to an understanding of how small co-located regional wine and tourism industries interact and impact on each other. While the implications of this study are directed toward specific regional wine and tourism industry development, there are some wider and more general interpretations that can be gleaned from these findings.

Firstly, the study has shown that it is useful to apply cluster theory in a micro context to gain an understating of small and sometimes immature regional industries. This supports the views of Rosenfeld (1996b, 2001a) that a non-standard approach is required and this need not lead to economic development outcomes. More recently, Rosenfeld (2002a) highlights that micro-clusters which lack scale but represent unique local competencies are valuable for regional branding and reputation; this can be significant, though indirectly beneficial to a region's economy.

Secondly, the study demonstrates that cluster processes are influenced by location and location does play a part in successful cluster outcomes. This is evidenced by the Bendigo region which demonstrated strong cluster processes and cluster complementarity when compared to the Ballarat and the Northern Grampians regions. Location and concentration of activity are fundamental criteria for cluster development and these same criteria appear to be relevant to wine and tourism micro-clusters in regional Victoria.

Clustering processes also differ for different industries. The study supports the notion that the wine industry has established cluster processes at a local level which is a recognised attribute of the industry at a national level (Marsh & Shaw, 2000). Conversely, the tourism clusters identified in the study, demonstrate more passive cluster processes which correlates to this industry being less readily described as a cluster.

The wine-tourism industry featured in this study, though not identified as a cluster, confirms findings by Hall and Johnson (1999) that it is generally the wine industry that drives wine-tourism development. Furthermore, this study reveals that this development is driven through active clustering processes and cluster complementarity. This finding adds support to the evidence that the wine industry demonstrates clustering processes at the national level and is therefore is more likely to do so at the regional level. It also suggests that clustering is generally

more concerned with the industry in which it belongs, and that location can have a moderating effect.

The final area of contribution made by this study relates to the strength and intensity of relationships between businesses within a cluster and between clusters. The study identifies that cluster processes are key factors in cluster complementarity for both wine and tourism clusters. Furthermore, active cluster processes need to be developed for complementarity between clusters to exist. However, active cluster processes alone do not mean that a cluster demonstrates complementarity with another co-located cluster. The study reveals that complementarity can be in one direction only, from one cluster to another, and not necessarily reciprocated. Complementarity can involve a range of cluster types and it is not dependent on cluster overlap.

8.4 Wine and Tourism Cluster Complementarity

This study was involved in determining if small regional wine and tourism industries can exhibit cluster characteristics, and if so, which of these cluster elements and dimensions are important in determining the type of cluster. Through the combination of descriptions of clusters by Rosenfeld (1996b) and Enright (2000a) and the concepts of a cluster continuum developed by P. Brown (1999), this study classified clusters on a continuum using the classifications of *wannabe*, *potential, latent* and *working* clusters to differentiate between the types of wine and tourism clusters being investigated. This not only enabled these regional industries to be identified and classified as particular types of clusters, but also indicated their particular strengths and structures.

Use of this approach for the study has shown there is diversity in the types of micro-clusters that form in regional wine and tourism industries. Consequently, different clustering processes occur in these clusters. The identification of these cluster processes as passive and active indicates, firstly, the type of cluster development, and the strengths and the nature of relationships within each cluster. In addition, the study demonstrates that the types of clustering processes play an important role in driving each cluster's capacity to interact with the other co-located cluster, and their influences on the development of wine-tourism in the region.

The Ballarat region study demonstrated that clusters can be identified at their earliest stages of development, and indications of their potential for further development can be postulated. It also revealed that, even in the earliest stages of development, clusters can exhibit complementarity with co-located clusters. Furthermore, this case study indicated that social dimensions may play a role in the development of active complementary processes. The wine cluster in the Ballarat region case study is classified as a *wannabe* cluster with limited economic strength. It has geographic and social cluster pre-conditions but shows limited passive or active clustering processes. The *latent* Ballarat tourism cluster is stronger and displays strong geographic and economic dimensions but fewer social dimensions. These clusters appear to share little and do not overlap. Nevertheless, the immature wine cluster demonstrates active complementarity with the tourism cluster, thus indicating this cluster may drive wine-tourism development in the Ballarat region. However, the immature status of this cluster has some impact on its ability to capitalise on this opportunity. It may be that this immaturity means this cluster uses the more developed tourism cluster as a support in it development.

The findings in the Northern Grampians region study suggest that in more developed clusters it is not necessarily the case that these types of clusters result in a greater development of cluster complementarity. In this case study, as in the Ballarat study, social dimension appear to play an important part in cluster complementarity. This regional study, when considered with the Ballarat study, suggests that industry has some part to play in this process. The Northern Grampians wine and tourism clusters are both described in this study as *latent* clusters but they display differing strengths and processes. The wine cluster displays many attributes but appears to lack the geographic dimensions that enable the cluster to progress to a working level. As a result, the wine cluster displays limited active clustering processes necessary to drive the cluster forward. On the other hand, the tourism cluster has strong geographic and economic dimensions but weak social dimensions; it also displays limited active clustering processes. These clusters do not overlap; however, the wine cluster displays active complementarity with the tourism cluster, whereas the tourism cluster displays only passive complementarity toward the wine cluster. Given this situation, the relative maturity of these clusters might suggest they do not rely on each other for growth but simply co-exist, with the wine cluster able to maximise the benefits of this.

The final Bendigo region study reinforces the findings presented above. In addition, this case study suggests that it is not solely active clustering processes or the type of industry that determines complementarity between clusters, but also provides evidence that there are regional implications. The wine cluster is classified as a *working* cluster in this study as it displays both very strong passive and active clustering processes; however, the Bendigo tourism cluster does

not. These clusters do not overlap; rather, they both show active levels of complementarity toward each other. These clusters interact at a different level which might stem from the fact that, clustering processes appear well developed with these clusters. The difference between these clusters and those in the other two case studies may have something to do with the lack of a key industry player or significant focal point in the Bendigo region meaning that to achieve critical mass these clusters may need to work collaboratively.

8.5 Clustering Processes: Industry and Location

This study views clusters from the perspective of clustering processes. This required a shift in focus from the usual theme of some commonality of production process to one relating to relationships and complementarity. The three studies of co-located wine and tourism industries, and the positioning of them within the cluster context, has focused attention not only on the importance of these processes, but also on whether they are activity sought or occur primarily a result of simple industry or enterprise co-location.

The progression toward active cluster processes and cluster interaction or overlap leading to cluster *vibrancy* or *dynamism* suggests that the complementarity between members of clusters and between clusters may become an important aspect of cluster formation and development, particularly in rural areas (Porter, 2003; Porter et al., 2004; Rosenfeld, 2001b, 2002a). The literature frames complementarity of clusters within complementary marketing and joint initiatives (Porter, 1998). These can be interpreted as active cluster processes of externality development (Brown, P., 1999). This study has introduced the possibility that active complementarity only occurs when participants in one cluster engage in joint activities and working relationships with participants in a co-located cluster. It also suggest, that these working relationships and joint activities can stimulate new businesses growth and opportunities, but this is limited unless both co-located clusters demonstrate active complementarity.

Competition, collaboration, joint activity and knowledge transfer between businesses are distinguishing features of clustering activity, and have been identified as important for cluster development (Harrison, 1991; Porter, 1998; Rosenfeld, 1997). The social culture of the co-located businesses is also important and reflects the ability of people to work together for some common purpose (Coleman, 1988). By relating this factor to a key aspect of active cluster

processes, that is relationship building, means this becomes an asset that contributes to local wealth (Rosenfeld, 2002a; Staber, 1996).

This study demonstrates that active cluster processes, where interrelationships and social culture is strong, are important for the development of dynamic or *working* clusters; this is particularly in evidence in the Bendigo region case study. These strengths reflect stronger relationships with a range of regional businesses, a more competitive and collaborative business environment and a high level of joint activity. Furthermore, this study suggests that there is a relationship between individual cluster complementarity and regional complementary. However, this does not mean that because active complementarity exists in one cluster – for example, the wine cluster in the Northern Grampians region – that it will necessarily translate to a regional scale.

Through as understanding of clusters, their interaction and overlap, and the processes of clustering within a given situation, a valuable contribution can be made to better understanding cluster development in rural and regional settings, particularly where clusters are co-located and interact or complement each other. This study also provides evidence that, for cluster complementarity to occur, clusters need not exhibit substantial overlap but do need to engage in active clustering processes.

8.5.1 Location

The main body of empirical data on clusters comes in two forms. First there is a prevalence of US data, much of it based on the work of the Cluster Mapping project conducted at the Harvard Business School (Institute for Strategy and Competitiveness, 2004). These data suggest that there are dominant locations and that some industries, particularly science and IT based industries, are strongly attracted to some locations (Saxenian, 1994). Other data emanates from the classic industrial districts of Italy (Harrison, 1991). In this case, the evidence suggests a dominance of region rather than industry. In summary, any assessment of the relative impact of place over industry may prove challenging.

There are factors common to certain regions, and not the particular cluster or industry, that impact on location decisions. The regional cases studies in this research display a range of cluster pre-conditions that have influenced business location decisions for both wine and tourism businesses. Lifestyle, as an important factor for location decision is reflected across all regions. This finding supports those of P. Brown (1999) who demonstrated that lifestyle played a significant role in the location decision of businesses attracted to the Christchurch electronics

cluster in New Zealand. Lifestyle choices have more recently been considered to play a role in cluster development together with historical accident and chance (Porter, 1998; Rosenfeld, 2001a). Likewise, Harrison (1991) linked the social fabric of a region with a region's development.

The significance of reputation as a driver of cluster growth has been recognised. For example, Saxenian (1990) suggests it enhances businesses credibility, and Porter (1998) argues regional reputation influences both customers and/or other businesses to favour a particular location. Deciding to locate a business in such areas provides comparative advantage and legitimacy for that decision, and hence reduces the liability of new business establishment (Pouder & St John, 1996). Reputation and regional recognition are identified in this study as important for business growth across all locations, and therefore are regarded a key drivers for successful cluster development. In some situations, they also have an impact on co-located clusters that might share some resources; for example, in wine and tourism clusters that share customers. This situation may lead to an increase in competition, but requires co-operation to maintain a level of positive reputation and regional recognition.

Regions benefit from clusters through the development of businesses that provide specialist inputs, spill-over of technology, a skilled labour pool or knowledge and infrastructure development that occur outside the sphere of influence of an individual business. These more traditional cluster externalities involve more passive cluster processes that simply emerge from clustering activity and co-location. These economies of scale show some agglomeration characteristics which are significant outcomes of co-location (Weber, 1926). These factors play some a role in the case study regions, particularly Bendigo. However, in general, benefits associated with agglomerations, such as availability of labour or infrastructure development, were not identified as important in these case studies. This factor in some cluster models negates the existence of these clusters (Martin & Sunley, 2002).

Evidence that small businesses may have greater agglomeration tendency than large firms (Rosenthal & Strange, 1999) was not detected in this study. However, it was observed that those clusters with a dominant player, for example the Ballarat tourism cluster, had a tendency to display weaker clustering processes than those that comprised a large number of smaller enterprises, such as the Bendigo tourism cluster. A significant location attraction, such as the Grampians mountain range, may also contribute to the weak active clustering processes evident in the Northern Grampians tourism cluster.

8.5.2 Industries

Evidence that some industries cluster more than others is largely concerned with aspects of those industries that are dependent on technology and advances in scientific knowledge (Swann et al., 1998). There appears to be less evidence that industries that are services based or dependent on natural resources readily form clusters. Rosenfeld (1997) suggests this might be a consequence of who is defining the cluster rather than the cluster itself. For example, governments define broad industries such as tourism as clusters, whereas academics relying on identifying clusters using statistical industry data do not.

Differences between wine and tourism clusters have been clearly demonstrated as have regional variation. This study also provides evidence there are differences in cluster processes between wine and tourism industries. The wine industry in Australia is recognised for its clustering attributes (Anderson 2000, 2001a; Marsh & Shaw, 2000), being described as an industry built on strong cluster strengths (Anderson, 2001a; Bond, 2000; Chapman, 2000; Marceau, 1997; Marsh & Shaw, 2000). However, much of this recognition is based on the national industry and not on the industry at a regional level. Marceau (1997) suggest that, in many regions, the industry no longer operates as a cluster other than in the context that wineries are co-located and share the same resource base. This study has shown that the wine industry, as described in the regional studies, does demonstrate considerable clustering activity when compared to the tourism industry.

Conversely, the tourism industry has not generally been recognised as a cluster; in fact, its broad base and fragmentation means it is difficult to define (Leiper, 1995). Some aspects of tourism challenge the more traditional notion of clusters because of the difficulty in defining such a sector. In addition, the notion that for a cluster to be active, competition and co-operation need to be mutually beneficial (Enright, 1996; Jorge, 1978) is somewhat foreign for the regional tourism sectors according to Leiper (1995) and S. Smith (1998). The prevalence of competitive activity between those in the tourism industry means they are more likely to see themselves as competitors, rather than co-operating to facilitate the productivity and potential of regional tourism growth (Killion, 2001). There was certainly evidence of this finding in this study.

However, there are some aspects of the tourism industry that should facilitate cluster development (Nordin, 2003; Porter, 1990, 1998; Rosenfeld, 1997). A range of factors, including horizontal integration increasing market concentration, economies of scale via chains and packaging, innovation via information technology, branding supplying mass markets and niche markets, outsourcing, and networks based on strategically based network alliances which have

become part of the travel industry, could all be considered as a part of an effective cluster (Ioannides & Debbage, 1998; Porter, 1990). However, the diversity of businesses and cross sector engagement and destination marketing are features of active cluster development that may be difficult to demonstrate.

A comparison of the wine and tourism industries across the Ballarat, Northern Grampians and Bendigo case studies provides evidence that there are some industry differences, particularly in the context of regional clusters. This is most clearly demonstrated in cluster pre-conditions where the wine industry has strong geographic and social pre-conditions, particularly lifestyle; whereas those of the tourism industry are based on economic factors, in particular that of perceived business opportunities.

In relation to the processes of clustering, active cluster processes are more clearly identified in the wine industry and reflect in part the collaborative strength of this industry. The implication from this study lends support to the understanding of these industries and reflects their differing capacity to function as clusters. The conclusion which can be drawn is that these industry differences can and do play a role in how the relationship between wine and tourism clusters develop.

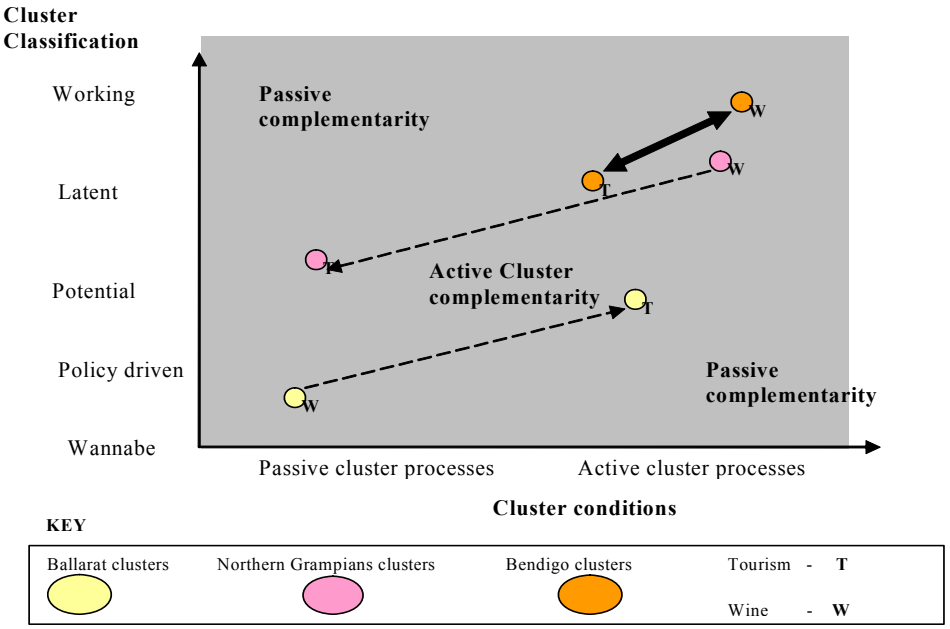
8.6 The Model

The basis for the development of a cluster complementary model for a co-located wine and tourism micro-cluster is to understand firstly whether overlap of co-located wine and tourism clusters is a pre-condition for complementarity between these clusters. The second factor is to determine what cluster processes influence the capacity of these co-located clusters to demonstrate complementarity. This model presents the concept of complementarity between wine and tourism industry micro-clusters within regions; it can be understood in relation to passive and active cluster processes and the cluster classification derived in this study for each of the clusters investigated. The model is presented in Figure 8.1

The model demonstrates that cluster overlap is not a pre-condition for complementarity nor is the type of cluster. For example, a cluster classified as a *wannabe*, *potential* or a *working* cluster can demonstrate active complementarity. The study reveals that cluster complementarity is more

aligned with the level of activity based on relationships demonstrated in active cluster processes and the industry in which the cluster fits.

Figure 8.1 Cluster complementary model representing co-located wine and tourism micro- clusters



By reviewing the role of cluster pre-conditions and passive and active cluster processes, it appears that social dimensions play a significant role in the development of cluster complementarity between micro-clusters. Without some active clustering processes, the ability of these micro-clusters to be complementary becomes limited, which in turn is reflected in the types of clusters identified. The less developed the cluster across all cluster elements, the less capacity it has to behave in a complementary way with a co-located cluster, although this is moderated by the industry in which they belong.

The model relates the level of clustering to the likelihood of developing cluster complementarity, but does not preclude small underdeveloped clusters from gaining benefits or facilitating this complementarity. This model also demonstrates that complementarity can be in one direction from one cluster to another, such as in Ballarat and the Northern Grampians study, or in two directions where complementarity is reciprocal between clusters, as in the Bendigo study. It also indicates that cluster overlap need not occur for this complementarity to exist. This

model has been developed as an outcome of this study; therefore, it is not intended for other applications without being further tested for other regional micro-clusters that may complement each other.

The opportunity to study the interaction and relationships between two industry based clusters in a regional setting may in turn help identify important factors which can direct initiatives that take advantage of these otherwise unnoticed opportunities. The outcome of this study demonstrates that aspects of micro-clusters can contribute to understanding the relationships between regional industries or groups of businesses in general and between wine and tourism micro-clusters in particular.

8.7 Regional Policy Strategies

The final question addressed in this study relates to the role of clusters in regional development. As a result of identifying and understanding the active processes of specific regional micro-clusters, the encouragement of cluster activity in the wine and tourism industries which follows can enhance regional development. The three regional case studies have provided an opportunity to identify a range of strategies than reflect the particular characteristics of these clusters. These strategies have been developed to guide both government and industry initiatives to enhance complementarity between wine and tourism clusters.

8.7.1 Ballarat Wine-tourism Strategies

The research identified two main issues facing the development of wine-tourism in the Ballarat region. Firstly, the wine industry is too small and dispersed for wine-tourism notoriety; secondly, the Ballarat tourism cluster lacks active cluster processes needed for effective collaborative wine-tourism development. Given these factors, a possible approach for Ballarat would be for the tourism cluster to:

- develop active externalities through collaborative actives
- recognise and maximise cluster diversity in particular the role of the retail sector, events and theme attractions
- understand its role as an exporter
- develop synergies with other regional sectors and clusters.

Suggested action for the Ballarat wine cluster is to:

- engage with tourism's strengths and themes through aggressive local marketing
- promote the regional industry to increase recognition locally and for visitors
- align itself with tourism attractions and tourism promotions
- explore opportunities separate from cellar door activities to infiltrate the tourism market.

8.7.2 Northern Grampians Wine-tourism Strategies

In the case of the Northern Grampians region, the research revealed a number of opportunities for wine-tourism development where the benefits of clusters and the processes of clustering can be exploited. The region demonstrates it has a developed reputation, and both the wine and tourism sector regard this as important. Much of this reputation is focused on the Grampians Mountains. However, two factors have emerged that are restricting wine-tourism development: a lack of active cluster processes in the tourism sector and its focus on an existing nature resource to attract business, and the dispersed nature of the wine cluster. Given these characteristics, some possible approaches for the Northern Grampians tourism cluster to adopt would be to:

- develop its active clustering processes though collaborative initiatives,
- recognise and maximise cluster diversity, particularly the role of the retail sector, events and theme attractions
- develop synergies with other regional sectors and clusters
- localise wine-tourism attractions through a wine centre initiative.

Suggested strategies for the Northern Grampians wine cluster are to:

- recognise and develop opportunities to centralise wine tourism activities
- build upon reputation and engage the interest of the tourism cluster
- maintain and grow active involvement with tourism associations to drive collaborative activities.

8.7.3 Bendigo Wine-tourism Strategies

This regional case study demonstrated that the Bendigo region has many opportunities for wine-tourism development that are being actively sought, and strategies to build on these already

appear to be in place. For example, active marketing of wine as part of the destination experience, with the involvement of the tourism cluster, has given this region the edge over the other regions studied. For these regional clusters the strategy is more of the same. Actively marketing wine-tourism as an attraction of the region, in conjunction with other attractions, is a positive strategy.

8.8 Future Direction

This study has identified a number of aspects of micro-cluster research in general, and some specific aspects of industry clusters that would benefit from more in-depth research.

8.8.1 Micro-cluster Research Opportunities

This study identified differences in how micro-clusters interact. It also identified some particular characteristics of individual clusters that impact on both the level and form of this interaction. There are some indications in this study that those clusters which have a dominant player or focus – for example the Ballarat tourism cluster and the Northern Grampians tourism cluster – display more passive cluster activities than those clusters that do not have this focus – for example, the Bendigo tourism cluster. The role of a dominant player on a regional micro-cluster, and its subsequent ability to work collaboratively and develop complementarities with other clusters, is an area of research where there is some evidence at a macro-cluster level that the dominant player may not be as significant to the cluster as might be expected (Brown, P., 1999).

This in turn raises the question – does a dominant player have a negative impact on micro-cluster development? Some literature suggests that a key player is critical to cluster development; however, this study indicates this might not always apply in micro-clusters.

8.8.2 Industry Cluster Research Opportunities

The study has shown that regional micro-clusters differ according to their industry characteristics. To understand better whether certain industries are more amenable to cluster development than others is an area open for further research. In particular, the question can be

asked – is there a common characteristic between industries that either limit or promote cluster activity?

8.9 Conclusion

This study has observed and reported on the application of cluster theory to regional industry based micro-clusters, and has provided an opportunity to utilise this theory in an applied way to identify and analyse co-located regional industry micro-clusters. Furthermore, it has studied regional wine and tourism micro-clusters and to the extent which they complement each other.

The study has found evidence of cluster complementarity, and has identified the relative importance of cluster pre-conditions and passive and active cluster processes in several wine and tourism micro-clusters. It has found that different clusters demonstrate different cluster strengths, and each cluster element – geographic, economic and social – plays a part in determining the type of cluster and how it interacts with co-located clusters.

The study has developed a framework to organise micro-cluster studies that considers co-location with other clusters, and has developed a model of cluster complementarity that can be tested and modified by other studies. It has added a degree of confidence in the application of cluster theory to micro-cluster analysis, and might initiate discussions about how to best understand the relationship between regional industries. Furthermore, it is through this study that further examination of micro-clusters and complementarity might be stimulated in order to consider other industries and other regional situations. Drawing from the study, appropriate strategies for the development of wine-tourism in the three regional case studies have been presented. It is hoped that these strategies will assist in directing and enhancing the benefits of wine-tourism development in regional Victoria.

Appendices

Appendix A Interview Schedule

Plan Language Statement

Dear participant,
My name is Pam McRae-Williams and I am a PhD research student at the University of Ballarat. My research involves both the wine and tourism industries and their interaction in the region.

The significance of both the wine and tourism industries in Western and Central Victoria for regional economic development is recognised. There are however some areas where the interaction between these industries appears more substantial than in apparently comparable areas. To be able to understand the factors that may influence these situations, the University of Ballarat in conjunction with the Victorian Wineries Tourism Council, Ballarat Tourism, the Greater City of Bendigo and the Northern Grampians Shire are hoping to identify key factors that may provide both private and public initiatives for strengthening the wine industry, tourism industry and wine tourism activity in each region.

This study is being undertaken over three years and will involve extensive in-depth research into these industries and how they impact on each other and the regional economy.

To be able to get the depth of understanding needed for this type of research, a series of interviews with key industry and regional stakeholders and a questionnaire distributed to participants in these industries will be part of this study.

As you have been selected as a key stakeholder, your participation in the following interview will provide valuable information for this study. The interview will take approximately 1 hour and your responses will be documented during the interview period. As part of the interview you will be required to answer some specific short response questions, some expanded less specific questions, complete a series of scaled questions and finally complete a relationship map. At this stage you will be able to review your responses to ensure they have not been misrepresented.

Before taking part in the interview you will be required to sign a consent form and I would like to assure you that your input will be treated as confidential and no direct quotes will be attributed to any participants name and will be anonymous.

You will also be asked to indicate any other persons that you believe would be valuable to interview as part of this research.

This study will provide valuable information for strengthening of your industry and the region and I thank you for your participation.

Yours sincerely,
Pam McRae-Williams

Interview Schedule and relationship map
Semi Structure In-depth Interview

This interview will take approximately one hour to complete

Participant profile

Interviewee representative position _____
Industry(s) represented _____

(i) GUIDING QUESTIONS

Q.1 How would you best describe your knowledge of this industry in your region?

Q.2 How long have you been involved in this industry in this region?

The following questioning will be divided into three main areas of investigation

1. Geographic scope
2. Economic interaction
3. Social capital

Geographic scope

Q.2 What are the major geographic factors that are of importance to the wine industry (tourism industry) in this region?

A. Is the industry dependent on regional geographic factors?
B. What do you see as the main geographic constraints to industry development in this region?
C. What do you see as the main geographic attributes to industry development in this region?

Q.3 How would you best describe the physical distribution characteristics of the industry in this region?
A. Is it localised or dispersed?
B. Is the industry based around a central industry player?
C. How would you describe the economic significance of this industry in the region?
D. How would you describe the makeup of this industry in the region?

Economic interaction

Q.4 Are there other industries in the region that share similar resources?
If so, what are they?
A. Do these industries produce a range of products that are used by your industry?
B. Do these industries engage in collaboration or shared initiatives with your industry?
C. If so, what are they?

Q.5 Within the region, what evidence is there of inputs to your industry being supplied from within the region?
A. How would you best describe the level of industry integration in the region?

Q.6 What would you identify as the main locally derived inputs in to this industry? (Include goods, services, education and training, financial and legal services, promotional etc.)

Q.7 What would you identify as the main inputs of this industry that are not available within the region? (Include goods, services, education and training, financial and legal services, promotional etc.)

Q.8 What would you identify as the major inputs to this industry that are derived from neighbouring regions?

Q.9 Are there other industries within the region that either supply a significant level of inputs or demand a significant level of output from your industry?
A. What are they and how closely are they aligned with your industry?

Q.10 How would you rate the level of networking within this industry?

A. What proportions of those involved in the industry are active in industry association?
B. Could you describe the association, its membership, level of activity and role?
C. Is there evidence of active networking between industry members and if so could you describe them?

Q.11 Are there other organisation or business association that involve your industry members?
A. Could you describe these associations, their membership, level of activity and role?
B. Is there evidence of active networking between your industry members with other associations? If so could you describe them?

Q.12 Do you see a change in demand for the products supplied by your industry and if so can you describe this?
A. Is the change derived from within the region or from outside the region?
B. Is there a change in the competitive position of the industry within the region?
C. Is there a change in the competitive position of the industry with other regions?
D. Are there any issues relating to availability of resources that may affect the competitiveness of this industry?

Social capital

Q.13 How would you describe the historic significance of this industry in the region?
A. What role does the history of the region play in the competitiveness of the industry?
B. What role do particular events in the region play in the competitiveness of the industry?
C. What role do particular characters play in the competitiveness of the industry?

Q.14 Within the region how would best describe the level of social infrastructure that benefits the industry?

A. What aspect of the region might attract participants in this industry?
B. What aspects of the regions may deter participants in this industry?

Q.15 How would you describe the innovative capacity of this industry?

A. From where is this innovative capacity derived, within the region, from individuals, from outside the region or not at all?

B. Does the innovative capacity within the region influences the competitiveness of the industry and if so could you describe this?

Q.16 How would you best describe the level of knowledge and skill sharing amongst the participants in the industry in this region?

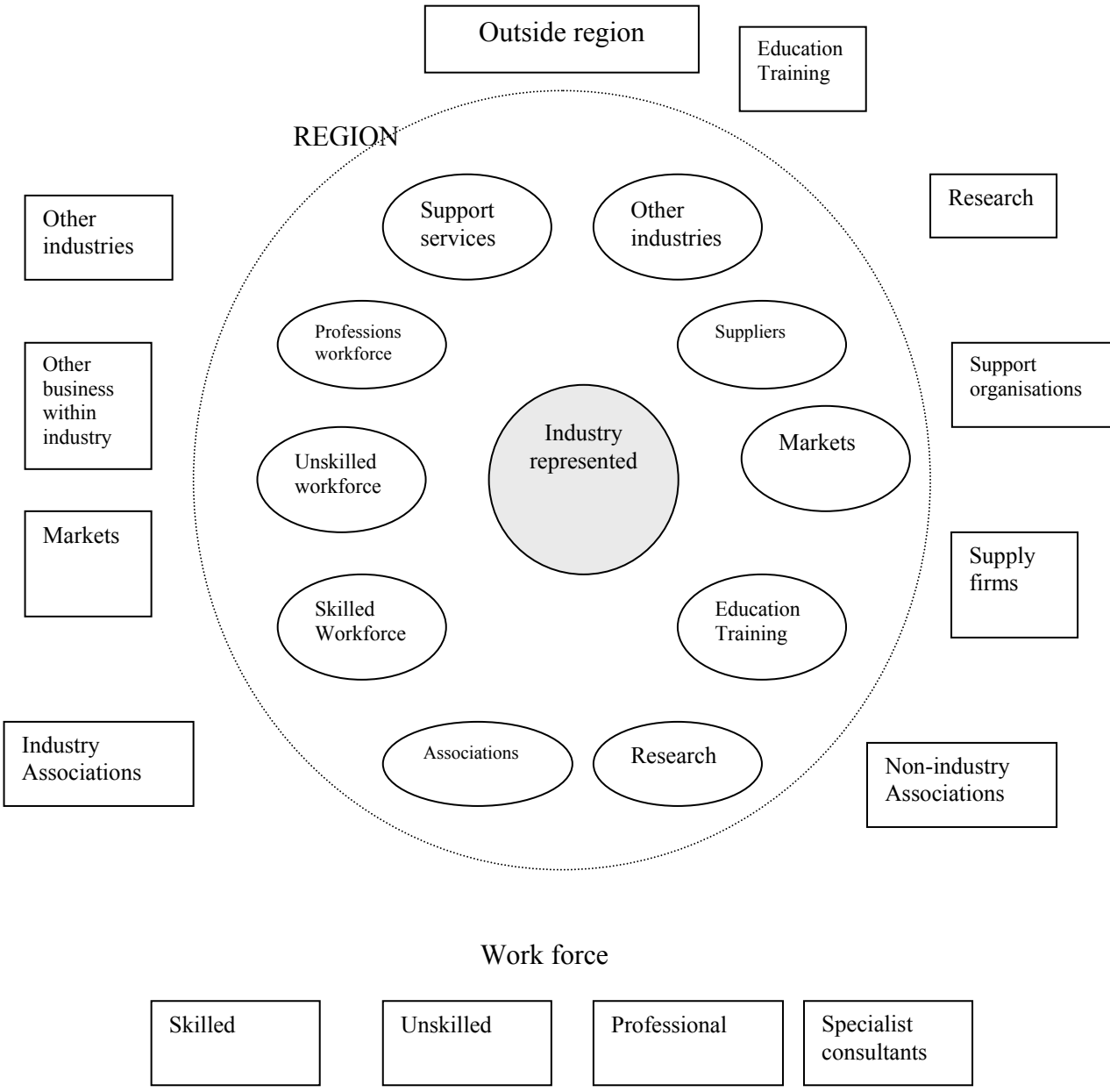
A. What are the processes that may facilitate this knowledge transfer?
B. Is there evidence of a reluctance to transfer knowledge within the regions or between regions?
C. To what degree do the participants in the industry share knowledge and skills with those of other industries in the region?

Q.17 Are there any other comments you would like to make?

Q.18 Could you please complete this relationship map by linking those stakeholders that have some relationship both within and outside the region and the strength of this relationship?

Relationship/network map Please indicate the strength of any relationships that the industry has with other groups identified on this map by connecting the boxes and squares.

Use: A **dotted line** for **weak** relationships
A **single line** for **stronger** relationships
A **double line** for **very strong** relationships



(ii) General Questions

Q.19 Are there any other comments you would like to make that you feel are relevant for this research?

Q.20 What outcomes would you anticipate from this research that may be of benefit to the particular industry or the region as a whole?

Q.21 Can you suggest any other people that would be valuable to interview and that would contribute valuable insight in building an understanding of the industry in this region?

NAME	CONTACT DETAILS	REASONS FOR CONTACT

I would like to thank you for your participation and would ask you to read this account and verify it as a fare representation of your responses.

Appendix B Questionnaires (Print Version)

Covering letter

Dear industry participant,

My name is Pam McRae-Williams and I am a PhD research student at the University of Ballarat. My research involves both the wine and tourism industries and their interaction in the region.

The significance of both the wine and tourism industries in Western and Central Victoria for regional economic development is recognised. There are however some areas where the interaction between these industries appears more substantial than in apparently comparable areas. To be able to understand the factors that may influence these situations, the University of Ballarat in conjunction with the Victorian Wineries Tourism Council, Ballarat Tourism, the Greater City of Bendigo and the Northern Grampians Shire are hoping to identify key factors that may provide both private and public initiatives for strengthening the wine industry, tourism industry and wine tourism activity in each region.

This study is being undertaken over three years and will involve extensive in-depth research into these industries and how they impact on each other and the regional economy.
To be able to get the depth of understanding needed for this type of research, a series of interviews with key industry and regional stakeholders and a questionnaire distributed to participants in these industries will be part of this study.

As your industry association or other stakeholders have identified you as an industry participant, your completion of the questionnaire will provide valuable information for this study. The questionnaire will take approximately 15 minutes to complete. The questionnaire will require you to select appropriate answers and will provide an opportunity to add other options if required. A comments section is also available if you wish to make additional comments. Your input will be treated as confidential and no direct quotes will be attributed to any participants name and will be anonymous.

This study will provide valuable information for strengthening of your industry and the region and I thank you for your participation.

Yours sincerely,

Pam McRae-Williams

WINE INDUSTRY SURVEY

Thank you for taking the time to take part in this survey. The object of this study is to identify issues which will aid in the development of your industry in the future. The survey will take about 15 minutes to complete. There are no right or wrong answers; we are simply interested in your opinions.

This research is being undertaken by Pam McRae-Williams as part of a PhD at the University of Ballarat in conjunction with Ballarat tourism and the Victorian wineries tourism council.
You may contact Pam at Ph. 5327 9420 or email - p.mcrae-williams@ballarat.edu.au
During the survey reference is made to the region where your business is located. For the purpose of this survey, **region refers to the XXXX region.**

In the first section of the survey we would like you to comment on your business activities and business strategies.

1. In which industry do you believe your business best fits?
□ Wine industry □ Tourism/hospitality industry □ Both Wine & Tourism Industries
Other _____

2. Which of the following activities does your business undertake?
Could you indicate which of these activities are **full-time** business activities, which are **part-time** activities and which are **hobbies**? **Tick relevant boxes only**

Grape production	□ **Full time**	□ **Part time**	□ **Hobby**
Winemaking	□ **Full time**	□ **Part time**	□ **Hobby**
Tourism/hospitality	□ **Full time**	□ **Part time**	□ **Hobby**
Retail sales	□ **Full time**	□ **Part time**	□ **Hobby**
Other_____	□ **Full time**	□ **Part time**	□ **Hobby**

3. Which of the following activities form part of your business? Tick relevant boxes only
□ Marketing □ Exporting □ Transportation □ Wholesaling □ Retailing
Other _____

4. What proportion of your livelihood is derived from your involvement in this business?
□ Less than 20% □ 20-40% □ 40-60% □ 60-80% □ Greater than 80%

5. Have you developed your business, or did you purchase an existing business?
□ Developed own business □ Purchased existing business □ Do not have a business

6. How would you best describe your business strategy?
□ Growth strategy □ Innovation strategy □ Status quo strategy
Other _____

This section asks you to comment on how important the natural advantages of your location and the relationships, knowledge and skills that exist are to your business

7. How important are the following factors to the success of your business? Tick the box that best describes the importance of these factors on a scale **1 = extremely important 5 = not important**

Local reputation	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Local knowledge	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Locally supplied goods and services	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Natural resources	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Local infrastructure	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

8. Could you indicate which of the following reason(s) influenced your decision to locate your business in the region and if these were major or minor influences on your decision? Tick relevant boxes only

Climate	□ Major influence	□ Minor influence	□ No influence
Water availability	□ Major influence	□ Minor influence	□ No influence
Proximity to Melbourne	□ Major influence	□ Minor influence	□ No influence
Local infrastructure	□ Major influence	□ Minor influence	□ No influence
Chance	□ Major influence	□ Minor influence	□ No influence
History of region	□ Major influence	□ Minor influence	□ No influence
Lifestyle choice	□ Major influence	□ Minor influence	□ No influence
Family reasons	□ Major influence	□ Minor influence	□ No influence
Icon personality in region	□ Major influence	□ Minor influence	□ No influence
Reputation of region	□ Major influence	□ Minor influence	□ No influence
Business opportunity	□ Major influence	□ Minor influence	□ No influence
Regional tourism industry	□ Major influence	□ Minor influence	□ No influence
Regional wine industry	□ Major influence	□ Minor influence	□ No influence
Availability of workforce	□ Major influence	□ Minor influence	□ No influence
Other _____	□ Major influence	□ Minor influence	□ No influence

9. How many business similar to your business are you aware of in your region? ☐

We would now like you to comment on how you relate to other businesses in your region

10. Could you indicate your level of agreement with the following statements about how you regard businesses similar to your business in your region?

Tick the box that best describes your feelings on a scale **1 = strongly agree** **5 = strongly disagree**

We see these businesses as our direct competitors.	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
We see these businesses as important to the success of our business.	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
We are aware of what these other businesses are doing.	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
We make every effort to set our standard higher than these other businesses.	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
We work closely with these other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
We are not influenced by what these other businesses are doing	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

11. Your business may have a range of relationships with other local businesses and agencies. Could you indicate your level of agreement with the following statements?

Tick the box that best describes your feelings on a scale **1 = strongly agree** **5 = strongly disagree**

Generally we work closely with other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we work closely with local suppliers	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we work closely with local education and research bodies	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we work closely with local economic development agencies	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we work closely with local tourism related businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

12. Do you purchase goods or services from other businesses in the regions? □ yes □ no
If **no** go to **question 13**

If yes, could you indicate which types of goods or services you generally purchase locally in the region? Tick relevant boxes only

□ **Grapes** □ **Wine** □ **Promotional material** □ **Packaging/labelling**
□ **Bottles** □ **Catering supplies** □ **Maintenance services** □ **General equipment**
□ **Specialist industry equipment** □ **Computer equipment** □ **Irrigation supplies**
□ **Agricultural fertilisers/chemicals** □ **Building contractors/supplies**
□ **Consulting expertise in winemaking** □ **Consulting expertise in grape cultivation**
□ **Consulting expertise in tourism development** □ **Consulting expertise in business development** □ **Specialist legal services** □ **Specialist financial services** **Other _____**

13. Do you sell any of your products or services to other businesses in the region? □ yes □ no
If **no** go to **question 14**

If yes, could you indicate which types of products or services you generally sell locally in the region? Tick relevant boxes only

□ **Grapes** □ **Wine** □ **Food** □ **Accommodation**
□ **Consulting expertise in winemaking** □ **Consulting expertise in grape cultivation**
□ **Consulting expertise in tourism development** □ **Consulting expertise in business development**
□ **Contract labour** □ **Machinery or equipment**
Other _____

14. Do you engage in joint activities with other businesses in your region? □ yes □ no
If **no** go to **question 16**

If yes, could you indicate which of the following types of businesses you have a joint working relationship with? Tick the box that best describes the relationship

Vineyards □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship** Winemaking business □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship** Accommodation business □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship** Restaurants □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship**
Retail outlet □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship**
Produce markets □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship** Tourism theme attractions □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship** Major events □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship** Tour operator's □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship** Other _____ □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship**

15. How would you best describe the nature of your relationship with these other business?
Formal (contractual, joint ventures, partnerships etc) or **Informal.** Tick relevant boxers only

Vineyards	□ **Formal**	□ **Informal**	□ **No relationship**
Winemaking business	□ **Formal**	□ **Informal**	□ **No relationship**
Accommodation business	□ **Formal**	□ **Informal**	□ **No relationship**
Restaurants	□ **Formal**	□ **Informal**	□ **No relationship**
Retail outlet	□ **Formal**	□ **Informal**	□ **No relationship**
Produce market	□ **Formal**	□ **Informal**	□ **No relationship**
Tourism theme attraction	□ **Formal**	□ **Informal**	□ **No relationship**
Major events	□ **Formal**	□ **Informal**	□ **No relationship**
Tour operator's	□ **Formal**	□ **Informal**	□ **No relationship**
Other _____	□ **Formal**	□ **Informal**	□ **No relationship**

16. Are you a member of an industry association? □ **yes** □ **no**
If **no** go to **question 17**

If yes, indicate which association you are a member of

□ Wine industry association □ Tourism industry association
Other _____

17. Do you share any of the following with other businesses in the region? Tick relevant boxes only

□ **Production capacity** □ **Venues** □ **Equipment** □ **Labour** □ **Marketing** □ **Promotions** □ **Expertise** □ **Knowledge** □ **Innovation**

Other_____

We would now like you to comment on factors that are important for the growth of your business

18. Select from the following list of factors those which you consider are important for the growth of your business? Tick relevant boxes only

□ **Access to land** □ **Water availability** □ **Labour** □ **Available capital**

□ **Time** □ **Grape price/contracts** □ **Innovation** □ **Reputation**

□ **Industry entrepreneurs' recognition (GI)** □ **New entrants to industry** □ **Competition** □ **Regional**

□ **Education and training** □ **Active wine industry** □ **Active tourism industry**

Other _____

Your business may gather and transfer knowledge in different ways and at different rates. We would now like you to comment on how you develop knowledge and new skills in your business

19. Do you agree or disagree with these following statements about the types of business knowledge and skill you might obtain from other regional businesses?

Tick the box that best describes you feelings on a scale **1 = strongly agree** **5 = strongly disagree**

Generally we quickly recognise and adopt the **operational improvements** made by other regional businesses □ **1** □ **2** □ **3** □ **4** □ **5**

Generally we quickly recognise and adopt the **technical advances** made by other regional businesses □ **1** □ **2** □ **3** □ **4** □ **5**

Generally we quickly recognise and adopt the new **marketing strategies** adopted by other regional businesse**s** □ **1** □ **2** □ **3** □ **4** □ **5**

Generally we quickly recognise and adopt the **improvements in distribution** made by other regional businesses □ **1** □ **2** □ **3** □ **4** □ **5**

Generally we quickly recognise and adopt the **improvements in business strategies** adopted by other regional businesses □ **1** □ **2** □ **3** □ **4** □ **5**

20. How important are the following as sources of skill and knowledge development for your business? Tick the box that best describes the importance of these on a scale

1= extremely important 5 = not important

Other wine related businesses from **within** the region □ **1** □ **2** □ **3** □ **4** □ **5**

Other wine related businesses from **outside** the region □ **1** □ **2** □ **3** □ **4** □ **5**

Tourism related businesses **within** the region □ **1** □ **2** □ **3** □ **4** □ **5**

Individuals from **within** the region □ **1** □ **2** □ **3** □ **4** □ **5**

Through industry associations □ **1** □ **2** □ **3** □ **4** □ **5**

Local educational and training institutions □ **1** □ **2** □ **3** □ **4** □ **5**

Other _____ □ **1** □ **2** □ **3** □ **4** □ **5**

Finally we would like you to comment on how important you believe collaboration with other regional businesses is to your business.

21. Please indicator on a scale of 1 to 5 how important collaboration with other businesses is in relation to the following factors. Tick relevant boxes only **1 = extremely important 5 = not important**

Access to labour	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Selling intermediate goods to other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Buying goods from other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Providing access to new technology	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Increasing market demand	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Finding new customers	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Enhancing reputation	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Improving innovation and new product development	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Joint trade fare participation	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Joint marketing	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Accessing new markets	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Accessing export markets	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Joint market research	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Inter-business referrals to other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Inter-business referrals to your business	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Other _____	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

For statistical purposes, could you please answer the following questions?

22. In which age category do you belong? □ **<20** □ **21-34** □ **35-49** □ **50-64** □ **65+**

23. What position do you hold in the business? □ **Owner** □ **Manager** □ **Owner/manager**
Other _____

24. Are you □ **Male** □ **Female**

25. What qualification(s) do you have relevant to your business?

Viticulture	□ **Informal**	□ **Diploma**	□ **Degree**
Winemaking	□ **Informal**	□ **Diploma**	□ **Degree**
Business	□ **Informal**	□ **Diploma**	□ **Degree**
Tourism	□ **Informal**	□ **Diploma**	□ **Degree**
Hospitality	□ **Informal**	□ **Diploma**	□ **Degree**
Other_____	□ **Informal**	□ **Diploma**	□ **Degree**

26. How many years have you been involved in your industry? ☐

27. Do you live locally? If so, for how many years? ☐

28. Which of the following best describes your business structure?

□ Owner operated business □ Partnership

□ Registered small business □ Subsidiary or publicly owned company

Other _____

29. Which of the following best describes your business annual turnover?

□ Less than $50,000 □ $50,000 –$100,000 □ Between $100,000 and $500,000

□ $500,000 and $1M □ Greater than $1M

30. Does your business involve?

□ Cellar door sales □ Tourism activities □ Food and accommodation

Do you have any further comments you wish to add

Thankyou for completing the survey

TOURISM INDUSTRY SURVEY

Thank you for taking the time to take part in this survey. The object of this study is to identify issues that will aid in the development of your industry in the future. The survey will take about 15 minutes to complete. There are no right or wrong answers; we are simply interested in your opinions.

This research is being undertaken by Pam McRae-Williams as part of a PhD at the University of Ballarat in conjunction with Ballarat tourism and the Victorian wineries tourism council.
You may contact Pam at Ph. 5327 9420 or email - p.mcrae-williams@ballarat.edu.au
During the survey reference is made to the region where your business is located. For the purpose of this survey, **region refers to the XXXX region.**

In the first section of the survey we would like you to comment on your business activities and business strategies.

1. In which industry do you believe your business best fits?
□ Tourism industry □ Hospitality industry □ Wine & Tourism/Hospitality Industries
Other _____

2. Which of the following activities does your business undertake?
Could you indicate which of these activities are **full time** business activities, which are **part time** activities and which are **hobbies?** Tick relevant boxes only

Tourism	□ **Full time**	□ **Part time**	□ **Hobby**
Hospitality	□ **Full time**	□ **Part time**	□ **Hobby**
Wine sales/promotion	□ **Full time**	□ **Part time**	□ **Hobby**
Retail sales	□ **Full time**	□ **Part time**	□ **Hobby**
Other_____	□ **Full time**	□ **Part time**	□ **Hobby**

3. Which of the following activities form part of your business? Tick relevant boxes only
□ Marketing □ Exporting □ Transportation □ Wholesaling □ Retailing
Other _____

4. What proportion of your livelihood is derived from your involvement in this business?
□ Less than 20% □ 20-40% □ 40-60% □ 60-80% □ Greater than 80%

5. Have you developed your business, or did you purchase an existing business?
□ Developed own business □ Purchased existing business □ Do not have a business

6. How would you best describe your business strategy?
□ Growth strategy □ Innovation strategy □ Status quo strategy
Other _____

This section asks you to comment on how important the natural advantages of your location and the relationships, knowledge and skills that exist are to your business

7. How important are the following factors to the success of your business? Tick the box that best describes the importance of these factors on a scale **1 = extremely important 5 = not important**

Local reputation	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Local knowledge	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Locally supplied goods and services	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Natural resources	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Local infrastructure	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

8. Could you indicate which of the following reason(s) influenced your decision to locate your business in the region and if these were major or minor influences on your decision? Tick relevant boxes only

Climate	□ **Major influence**	□ **Minor influence**	□ **No influence**
Water availability	□ **Major influence**	□ **Minor influence**	□ **No influence**
Proximity to Melbourne	□ **Major influence**	□ **Minor influence**	□ **No influence**
Local infrastructure	□ **Major influence**	□ **Minor influence**	□ **No influence**
Chance	□ **Major influence**	□ **Minor influence**	□ **No influence**
History of region	□ **Major influence**	□ **Minor influence**	□ **No influence**
Lifestyle choice	□ **Major influence**	□ **Minor influence**	□ **No influence**
Family reasons	□ **Major influence**	□ **Minor influence**	□ **No influence**
Icon personality in region	□ **Major influence**	□ **Minor influence**	□ **No influence**
Reputation of region	□ **Major influence**	□ **Minor influence**	□ **No influence**
Business opportunity	□ **Major influence**	□ **Minor influence**	□ **No influence**
Regional tourism industry	□ **Major influence**	□ **Minor influence**	□ **No influence**
Regional wine industry	□ **Major influence**	□ **Minor influence**	□ **No influence**
Availability of workforce	□ **Major influence**	□ **Minor influence**	□ **No influence**
Other _____	□ **Major influence**	□ **Minor influence**	□ **No influence**

9. How many business similar to your business are you aware of in your region? ☐

We would now like you to comment on how you relate to other businesses in your region

10. Could you indicate your level of agreement with the following statements about how you regard businesses similar to your business in your region?
Tick the box that best describes your feelings on a scale **1 = strongly agree** **5 = strongly disagree**

We see these businesses as our direct competitors	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
We see these businesses as important to the success of our business	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
We are aware of what these other businesses are doing	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
We make every effort to set our standards higher than these other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
We work closely with these other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
We are not influenced by what these other businesses are doing	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

11. Your business may have a range of relationships with other local businesses and agencies. Could you indicate your level of agreement with the following statements?
Tick the box that best describes your feelings on a scale **1 = strongly agree** **5 = strongly disagree**

Generally we work closely with other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we work closely with local suppliers	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we work closely with local education and research bodies	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we work closely with local economic development agencies	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we work closely with local tourism related businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

12. Do you <u>purchase</u> goods or services from other businesses in the regions? □ **yes** □ **no**
If **no** go to **question 13**

If yes, could you indicate which types of goods or services you generally purchase locally in the region? Tick relevant boxes only

□ **Advertising services** □ **Promotional material** □ **Catering supplies**
□ **Wine (locally produced)** □ **Maintenance services** □ **Cleaning services**
□ **General equipment** □ **Specialist industry equipment** □ **Computer equipment** □ **Building contractors/supplies** □ **Consulting expertise in tourism development**
□ **Consulting expertise in business development** □ **Specialist legal services**
□ **Specialist financial services** **Other _____**

13. Do you <u>sell</u> any of your products or services to other businesses in the region? □ **yes** □ **no**
If **no** go to **question 14**

If yes, could you indicate which types of products or services you generally sell locally in the region? Tick relevant boxes only

□ **Tourism activities** □ **Wine (locally produced)** □ **Food**
□ **Accommodation** □ **Consulting expertise in tourism development**
□ **Consulting expertise in business development** □ **Contract labour** □ **Machinery or equipment**
Other _____

14. Do you engage in joint activities with other businesses in your region? □ **yes** □ **no**
If **no** go to **question 16**

If yes, could you indicate which of the following types of businesses you have a joint working relationship with? Tick the box that best describes the relationship

Wineries/vineyards □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship** Accommodation business □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship**
Restaurants □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship**
Retail outlet □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship**
Tourism theme attractions □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship**
Major events □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship** Tour operator's □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship** Other _____ □ **Ongoing relationship** □ **Seasonal relationship** □ **Infrequent relationship**

15. How would you best describe the nature of your relationship with these other business?
Formal (contractual, joint ventures, partnerships etc) or **Informal.** Tick relevant boxers only

Wineries/vineyards	□ **Formal**	□ **Informal**	□ **No relationship**
Accommodation business	□ **Formal**	□ **Informal**	□ **No relationship**
Restaurants	□ **Formal**	□ **Informal**	□ **No relationship**
Retail outlet	□ **Formal**	□ **Informal**	□ **No relationship**
Tourism theme attraction	□ **Formal**	□ **Informal**	□ **No relationship**
Major events	□ **Formal**	□ **Informal**	□ **No relationship**
Tour operator's	□ **Formal**	□ **Informal**	□ **No relationship**
Other _____	□ **Formal**	□ **Informal**	□ **No relationship**

16. Are you a member of an industry association? □ **yes** □ **no**
If **no** go to **question 17**

If yes, indicate which association you are a member of
□ Tourism industry association □ Wine industry association
Other _____

17. Do you share any of the following with other businesses in the region? Tick relevant boxes only
□ **Accommodation capacity** □ **Venues** □ **Equipment** □ **Labour** □ **Marketing** □ **Promotions** □ **Expertise** □ **Knowledge** □ **Innovation**

Other_____

We would now like you to comment on factors that are important for the growth of your business

18. Select from the following list of factors those which you consider are important for the growth of your business? Tick relevant boxes only

□ Access to land	□ Water availability	□ Labour	□ Available capital
□ Time	□ Proximity to Melbourne	□ Innovation	□ Reputation
□ Industry entrepreneurs	□ New entrants to industry	□ Competition	□ Regional recognition
□ Education and training	□ Active wine industry	□ Active tourism industry	

Other _____

Your business may gather and transfer knowledge in different ways and at different rates. We would now like you to comment on how you develop knowledge and new skills in your business

19. Do you agree or disagree with these following statements about the types of business knowledge and skill you might obtain from other regional businesses?
Tick the box that best describes you feelings on a scale **1 = strongly agree 5 = strongly disagree**

Generally we quickly recognise and adopt the **operational improvements** made by other regional businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we quickly recognise and adopt the **technical advances** made by other regional businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we quickly recognise and adopt the **new marketing strategies** adopted by other regional businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we quickly recognise and adopt the **improvements in distribution** made by other regional businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Generally we quickly recognise and adopt the **improvements in business strategies** adopted by other regional businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

20. How important are the following as sources of skill and knowledge development for your business? Tick the box that best describes the importance of these on a scale **1= extremely important 5 = not important**

Other tourism related businesses from **within** the region	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Other tourism related businesses from **outside** the region	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Wine related businesses **within** the region	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Individuals from **within** the region	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Through industry associations	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Local educational and training institutions	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Other _____	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

Finally we would like you to comment on how important you believe collaboration with other regional businesses is to your business.

21. Please indicator on a scale of 1 to 5 how important collaboration with other businesses is in relation to the following factors. Tick relevant boxes only **1 = extremely important 5 = not important**

Access to labour	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Selling intermediate goods to other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Buying goods from other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Providing access to new technology	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Increasing market demand	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Finding new customers	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Enhancing reputation	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Improving innovation and new product development	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Joint trade fare participation	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Joint marketing	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Accessing new markets	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Accessing export markets	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Joint market research	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Inter-business referrals to other businesses	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Inter-business referrals to your business	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
Other _____	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

For statistical purposes, could you please answer the following questions?

22. In which age category do you belong? □ **<20** □ **21-34** □ **35-49** □ **50-64** □ **65+**

23. What position do you hold in the business? □ Owner □ Manager □ Owner/manager
Other _____

24. Are you □ **Male** □ **Female**

25. What qualification(s) do you have relevant to your business?

Tourism	□ **Informal**	□ **Diploma**	□ **Degree**
Hospitality	□ **Informal**	□ **Diploma**	□ **Degree**
Business	□ **Informal**	□ **Diploma**	□ **Degree**
Winemaking/appreciation	□ **Informal**	□ **Diploma**	□ **Degree**
Other_____	□ **Informal**	□ **Diploma**	□ **Degree**

26. How many years have you been involved in your industry? ☐

27. Do you live locally? If so, for how many years? ☐

28. Which of the following best describes your business structure?

□ Owner operated business □ Partnership
□ Registered small business □ Subsidiary or publicly owned company
Other _____

29. Which of the following best describes your business annual turnover?

□ Less than $50,000 □ $50,000 –$100,000 □ Between $100,000 and $500,000
□ $500,000 and $1M □ Greater than $1M

30. Does your business involve?

□ Cellar door sales □ Tourism activities □ Food and accommodation

Do you have any further comments you wish to add

Thankyou for completing the survey

Appendix C Factor Analysis

Question 10

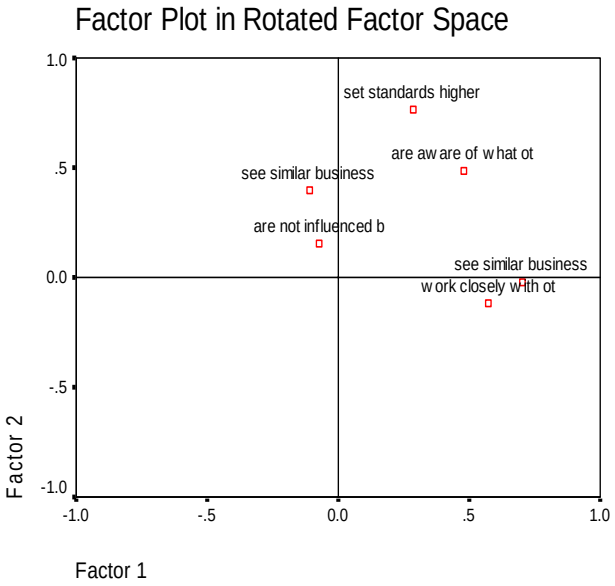
Descriptive Statistics

	Mean	Std. Deviation(a)	Analysis N(a)	Missing N
See similar businesses as direct competitors	3.19	1.379	191	1
See similar businesses as important to our success	2.28	1.210	191	0
Are aware of what other similar businesses are doing	2.17	.921	191	0
Set standards higher than other similar businesses	1.81	.955	191	0
Work closely with other similar businesses	2.83	1.139	191	0
Are not influenced by other similar businesses	2.89	1.237	191	0

a For each variable, missing values are replaced with the variable mean.

Factor Matrix(a)

	Factor	
	1	2
Set standards higher than other similar businesses	.705	.415
Are aware of what other similar businesses are doing	.677	.074
See similar businesses as important to our success	.532	-.457
Work closely with other similar businesses	.371	-.453
See similar businesses as direct competitors	.163	.377
Are not influenced by other similar businesses	.043	.167



Extraction Method: Unweighted Least Squares.
a 2 factors extracted. 4 iterations required.

Total Variance Explained

Factor	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.406	23.429	23.429	1.150	19.161	19.161
2	.762	12.702	36.130	1.018	16.970	36.130

Extraction Method: Unweighted Least Squares.

Question 11

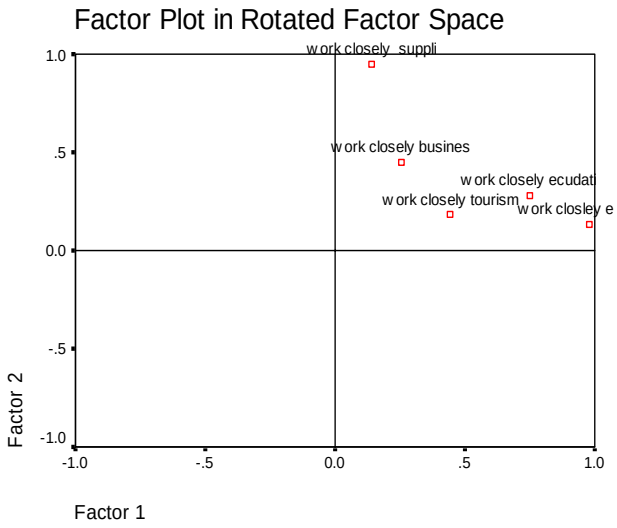
Descriptive Statistics

	Mean	Std. Deviation(a)	Analysis N(a)	Missing N
Work closely businesses	2.26	1.072	191	0
Work closely suppliers	2.13	1.133	191	0
Work closely ecudation and research bodies	3.15	1.334	191	0
Work closley economic development agencies	3.17	1.251	191	0
Work closely tourism business	2.86	1.377	191	0

a For each variable, missing values are replaced with the variable mean.

Factor Matrix(a)

	Factor	
	1	2
Work closley economic development agencies	.892	-.430
Work closely ecudation and research bodies	.782	-.176
Work closely tourism business	.469	-.092
Work closely businesses	.459	.236
Work closely suppliers	.638	.714



Extraction Method: Unweighted Least Squares.
a Attempted to extract 2 factors. More than 25iterations required. (Convergence=.003). Extraction was terminated.

Total Variance Explained

Factor	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.246	44.911	44.911	1.806	36.119	36.119
2	.790	15.807	60.718	1.230	24.599	60.718

Extraction Method: Unweighted Least Squares.

Questions 19/20

Descriptive Statistics

	Mean	Std. Deviation(a)	Analysis N(a)	Missing N
Recognise and adopt operational improvements	2.68	1.185	191	13
Recognise and adopt technical improvements	2.73	1.203	191	12
Recognise and adopt new marketing strategies	2.82	1.141	191	16
Recognise and adopt improvements in distribution	3.17	1.173	191	23
Recognise and adopt improvements in business strategies	2.87	1.163	191	18
Source of knowledge wine related businesses within region	2.12	1.254	191	11
Source of knowlege wine related businesses outside region	2.57	1.223	191	11
Source of knowledge tourism related businesses within region	3.14	1.326	191	21
Source of knowledge individuals within region	2.50	1.283	191	12
Source of knowledge industry associations	2.31	1.274	191	13

a For each variable, missing values are replaced with the variable mean.

Factor Matrix(a)

	Factor	
	1	2
Recognise and adopt operational improvements	.831	-.233
Recognise and adopt improvements in business strategies	.822	-.193
Recognise and adopt new marketing strategies	.805	-.279
Recognise and adopt technical improvements	.776	-.200
Recognise and adopt improvements in distribution	.767	-.191
Source of knowledge individuals within region	.638	.354
Source of knowledge industry associations	.561	.169
Source of knowledge tourism related businesses within region	.537	.380
Source of knowledge wine related businesses within region	.521	.445
Source of knowledge wine related businesses outside region	.332	.371

Extraction Method: Unweighted Least Squares. a 2 factors extracted. 5 iterations required.

Total Variance Explained

Factor	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.596	45.960	45.960	3.478	34.783	34.783
2	.880	8.801	54.761	1.998	19.978	54.761

Extraction Method: Unweighted Least Squares.

Question 21

Descriptive Statistics

	Mean	Std. Deviation(a)	Analysis N(a)	Missing N
Collaboration - accessing labour	3.56	1.380	191	21
Collaboration - selling intermediate goods	3.52	1.377	191	21
Collaboration - buying goods	2.74	1.314	191	15
Collaboration - accessing new technology	2.97	1.243	191	19
Collaboration - increasing market demand	2.17	1.211	191	19
Collaboration - finding new customers	1.99	1.163	191	13
Collaboration - enhancing reputation	1.73	1.044	191	14
Collaboration - innovation and product development	2.69	1.275	191	18
Collaboration - trade fair participation	2.68	1.398	191	21
Collaboration - joint marketing	2.52	1.369	191	15
Collaboration - accessing new markets	2.45	1.269	191	21
Collaboration - accessing export markets	3.57	1.480	191	27
Collaboration - joint market research	3.11	1.399	191	24

a For each variable, missing values are replaced with the variable mean.

Factor Matrix(a)

	Factor		
	1	2	3
Collaboration - accessing new markets	.797	-.352	-.176
Collaboration - innovation and product development	.735	.108	-.123
Collaboration - increasing market demand	.724	.189	-.307
Collaboration - joint market research	.722	-.245	.115
Collaboration - enhancing reputation	.702	.002	-.307
Collaboration - finding new customers	.653	-.056	-.496
Collaboration - selling intermediate goods	.652	.444	.356
Collaboration - accessing export markets	.622	-.178	.283
Collaboration - accessing labour	.618	.205	.250
Collaboration - joint marketing	.616	-.474	.172
Collaboration - trade fair participation	.612	-.431	.301
Collaboration - buying goods	.539	.540	.001
Collaboration - accessing new technology	.457	.516	.121

Extraction Method: Unweighted Least Squares. a 3 factors extracted. 4 iterations required.

Total Variance Explained

	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.587	42.974	42.974	2.889	22.227	22.227
2	1.473	11.334	54.309	2.570	19.767	41.994
3	.897	6.901	61.210	2.498	19.215	61.210

Extraction Method: Unweighted Least Squares.

Glossary

ABS	Australian Bureau of Statistics
ANZSIC	Australian New Zealand Standard Industry Classification
SIC	Standard industry Classification
TSA	Tourism Satellite Account

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